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ICONES PLEUROTHALLIDINARUM
XX

SYSTEMATICS OF JOSTIA, ANDINIA, BARBOSELLA, BARBRODRIA, & PLEUROTHALLIS SUBGEN. ANTILLA, SUBGEN. EFFUSIA SUBGEN. RESTREPIOIDIA

Missouri Botanical Garden

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SYSTEMATICS OF JOSTIA ANDINIA BARBOSELLA BARBRODRIA PLEUROTHALLIS SUBGEN. ANTILLA SUBGEN. EFFUSIA SUBGEN. RESTREPIOIDIA

ADDENDA TO LEPANTHES, MASDEVALLIA, PLATYSTELE, PLEUROTHALLIS, RESTREPIOPSIS, SCAPHOSEPALUM AND TEAGUEIA

Carlyle A. Luer

Missouri Botanical Garden

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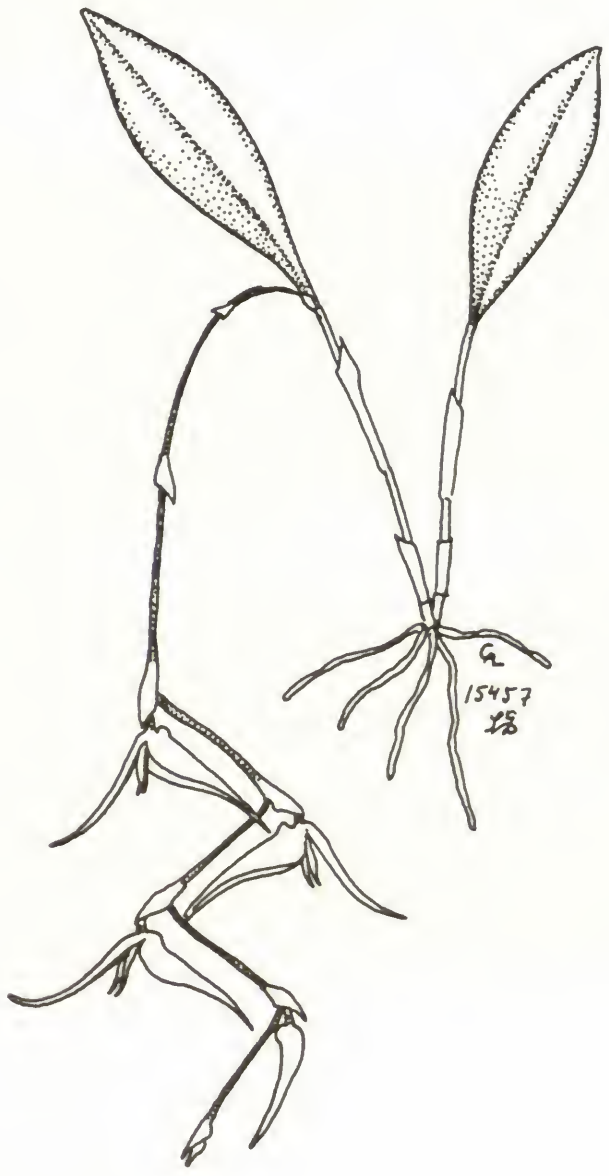


Jostia teaguei Luer, Province of Tungurahua, Ecuador, Cerro Abitagua, altitude 2020 meters above sea level, 17 June 1998, dissected and photographed by Louis Jost, April 1999. The actively motile labellum is "up" in the upper photograph, and "down" in the lower photograph.

JOSTIA

A NEW GENUS IN THE PLEUROTHALLIDINAE

The proposed genus consists of one species that has been in cultivation since it was first introduced by Walter Teague in 1975. It was described in 1978 as *Masdevallia teaguei*. Although it has resided in many collections, the active motility of the lip was unnoticed until the action was discovered by Louis Jost who was working in Baños, Ecuador, in the spring of 1999.

A passively mobile lip occurs frequently in many infrageneric taxa of *Masdevallia* and *Pleurothallis*, of other pleurothallid genera, and also of many non-pleurothallid genera, e.g. *Anguloa* Ruiz & Pav., *Bulbophyllum* Thouars, *Calopogon* R.Br., and *Peristeria* Hook. However, an actively motile lip is uncommon, having developed independently in three unrelated pleurothallid taxa (Luer, 1987), as well as several non-pleurothallid genera, e.g. *Caleana* R.Br., *Drakaea* Lindl., *Plocoglottis* Blume, and *Pterostylis* R.Br. (Dressler, 1981).

The lip of *Acostaea* is broad at the base where it is hinged to an equally broad, concave end of the column-foot. Changes in turgidity of the concave column-foot cause the lip to rise and descend. A pair of clubbed appendages descend from the base of the lip of *Condylago* and glide over the bulbous end of the column-foot. A thin strap between the two arms is anchored to the undersurface of the column-foot, so that changes in turgidity cause the strap to pull the lip downward. The spring-like basal claw of the lip of *Porroglossum* is attached to the backside of a long column-foot. Changes in turgidity alter the tension, causing the lip to flip upward and later descend. See *Icones Pleurothallidinarum*-4, 1987. The mechanism of the active lip of *Porroglossum muscosum* (Rchb.f.) Schltr. was investigated in detail by Oliver in 1888.

When *Masdevallia teaguei* was published (Luer, 1978), the peculiar lip was described in detail. Because of the unique lip, the species was placed into a unispecific subgenus, *Teagueia* (Luer, 1986). Recently, I received a communication from Louis Jost, artist and writer living in Ecuador, who is also interested in photography and orchids. He asked me if I was aware that the lip of *Masdevallia teaguei* was sensitive, which, of course, I was not. I asked him to get more plants and make observations. To date, he has not discovered the sensitive spot other than that a disturbance causes the lip to flip suddenly upward to a position beneath the column. After about 15 minutes, the lip returns to the "down" position.

The lip also rises to an "up" position at sundown. The return to the "down" position seems to be accomplished by gravity. He discovered that when he kept a plant with flower upside down over night, the lip was still "up" in the morning, whereas if the plant had been erect the lip would have been "down." Upon returning the plant to an upright position, the lip dropped down with a relaxed strap, in which turgidity is gradually restored. Possibly, a sudden loss in turgidity on the outside of the connecting strap causes the action.

Jostia Luer, gen. nov.

Type: *Masdevallia teaguei* Luer, Selbyana 2: 381, 1978.

Ety.: Named in honor of Louis Jost, presently of Quito, Ecuador, who first noted that the lip of *Masdevallia teaguei* was actively motile.

Planta generis *Masdevalliae* Ruiz & Pav. similis, sed labello sensitivo bilamellato apice tricarinato base incrassato ad pedem columnae cum loro lato connexo distinguitur.

A description of the single species recognized in this proposed genus will suffice for the genus.

Jostia teaguei Luer, Selbyana 2: 381, 1978.

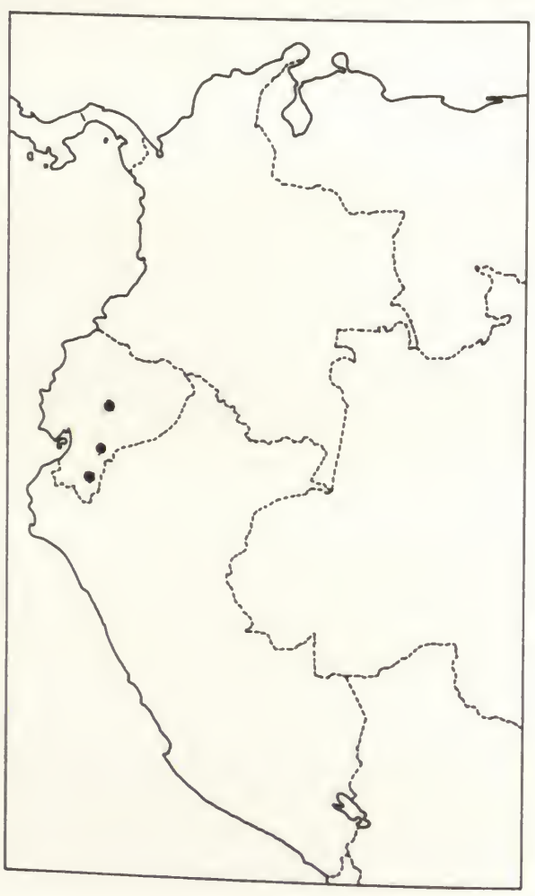
Bas.: *Masdevallia teaguei* Luer, Selbyana 2: 381, 1978.

Ety.: Named in honor of Walter Teague of San Francisco, California, co-discoverer of the species.

Syn.: *Masdevallia braasii* Mohr, Die Orchidee 35: 64, 1984.

Ety.: Named in honor of Lothar Braas, a contemporary author.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, erect, slender, 2-6 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** dark green, erect, coriaceous, petiolate, 9-15 cm long including the slender, blackish petiole 3-4 cm long, the blade elliptical-ovate, subacute to obtuse, 2-3 cm wide, the base cuneate into the petiole. **Inflorescence** a congested, successively several-flowered raceme up to 3 cm long, borne by an erect, slender, terete peduncle 9-18 cm long, with a bract above the base and borne from above the base of the ramicaul; floral bracts loose, tubular, 8-15 mm long; pedicel 12-16 mm long; ovary 6 mm long; **sepals** red-brown to red-purple, yellow-orange toward the base, glabrous externally, microscopically red-pubescent within, the dorsal sepal obovate, 15 mm long, 9 mm wide, connate to the lateral sepals for 7 mm to form a gaping, funnel-shaped tube, the free portion ovate, the obtuse apex contracted into an erect, slender, yellow tail 17-20 mm long, the lateral sepals 18 mm long, connate 15 mm into an expanded, ovate lamina 19 mm wide, sharply constricted below the middle, forming a mentum below the column-foot and a secondary mentum above, the obtuse apices contracted into slender tails 7 mm long; **petals** connate to the lower third of the column, yellow, marked with red at the apex, elliptical, oblique, 6 mm long, 3 mm wide, the truncate apex apiculate or obscurely tridentate, both margins lightly dilated, the lower half with a short, thick, acute, retrorse callus above the base; **lip** red-orange, ovate, 6 mm long from the base to the apices of the plates of the disc, 3.75 mm wide, the disc deeply cleft down the center to form a pair of prostrate, microscopically scabrous, truncate plates overlying the rigidly decurved, rounded apical lobe 2.5 mm long, 2.25 mm wide with 3 tall, subverrucose lamellae, the base of the lip thickened, hinged below by a broad strap to the bottom of the column-foot; **column** yellow, semiterete, 6 mm long, with the petals obliquely inserted below the middle, the foot 4 mm long, very thick, incurved, the apex sub-bulbous.



ECUADOR: **Zamora-Chinchipe**: epiphytic in cloud forest near Valladolid, alt. ca. 2300 m, July 1975, collected by W. Teague, L. Figueroa & D. Welisch, cultivated in San Francisco, Sept. 1978, *C. Luer 2035* (Holotype: SEL); epiphytic in cloud forest above Valladolid, alt. 2450 m, 18 Mar. 1984, *C. Luer, S. Dalström, T. Höijer, J. Kuijt & D. D'Alessandro 9583* (MO); same area, 23 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10942* (MO); cultivated at Colomborquideas, 17 Apr. 1988, *C. Luer 13255* (MO). **Morona-Santiago**: Tinajillas, road to Limón, alt. 2100 m, collected by E. Sánchez, Jan. 1995, *A. Hirtz 6128* (MO). **Tungurahua**: Cerro Abitagua, alt. 2020 m, 17 June 1998, *L. Jost 1073* (MO).

In error: Colombia: Nariño, La Cocha, alt. 3000 m, *E. Waldvogel s.n.* (holotype of *M. braasii*, Herb. Mohr).

The solitary species of this proposed taxon is infrequent in cloud forests of southern Ecuador where it is apparently endemic. The morphology of the lip and column-foot, and the active mechanism acquired by them are probably recent evoltionary deviations from those of the masses of *Masdevallia*, because the DNA of *M. teaguei* observed by Pridgeon (pers. comm.) does not differ significantly from that of the other species of *Masdevallia* studied.

The congested, successively flowered raceme, about as high as the dark green, petiolate leaves, is borne by an erect, terete peduncle that originates above the base of the ramicaul. The red-brownish, fleshy sepals are connate into a conical tube, the laterals constricted beneath between primary and secondary mentums. The petals, connate to the lower third of the column, are provided with a basal tooth.

The body of the lip consists of a broad hypochile composed of a pair of flat laminae with a deep cleft between. From beneath the apex of the body, a rigid, tricarinate epichile decurves. The thickened base of the lip rests on the edge of a markedly thickened end of the column-foot. A broad, thin strap originating from below the middle of the undersurface of the lip is inserted onto the backsurface of the thickened end of the column-foot. Unfortunately, the lip was described in the "closed" position, without any thought that it might also descend to an "open" position.

REFERENCES

DRESSLER, R.L., 1981. The Orchids: natural history and classification 110-114. Harvard University Press, Cambridge.

LUER, C.A., 1978. *Masdevallia teaguei* Luer, Selbyana 2: 381.

_____1986. Icones Pleurothallidinarum II. Systematics of *Masdevallia*. Monogr. Syst. Bot. Missouri Bot. Gard. 16: 53, 55.

_____1987. Icones Pleurothallidinarum IV. Systematics of *Acostaea, Condylago*, and *Porroglossum*. Monogr. Syst. Bot. Missouri Bot. Gard. 24: 1-90.

OLIVER, F.W., 1888. On the sensitive labellum of *Masdevallia muscosa* Rchb.f. Ann. Bot. (London) 1: 237-253.

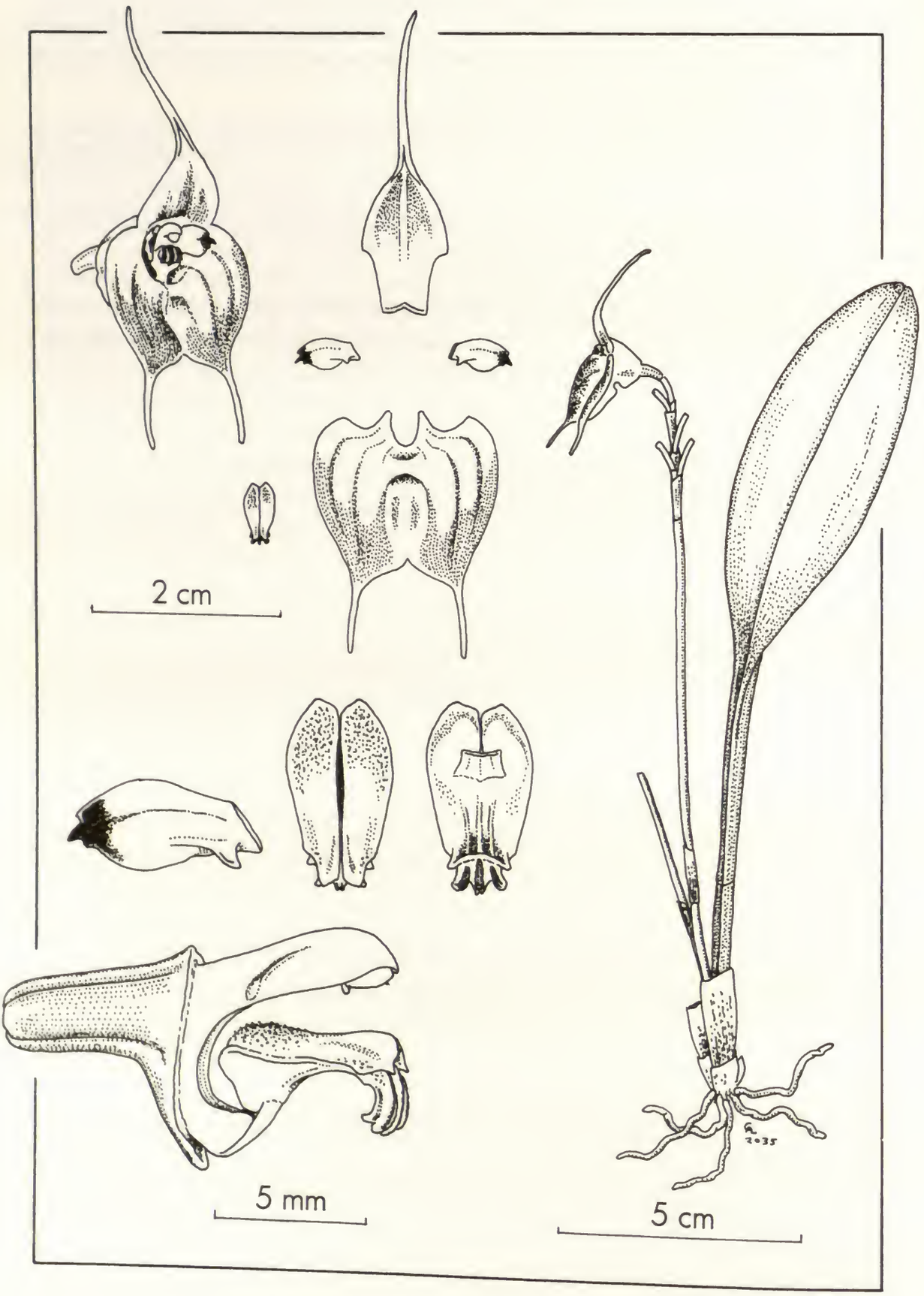


Plate 1. Jostia teaguei

ABSTRACT

A new genus in the Pleurothallidinae is proposed to accommodate two non-conforming species attributed to *Salpistele* Dressler. The genus is described; a key to the two species is given. Both species have been described and illustrated in *Icones Pleurothallidinarum VIII*, Monogr. Syst. Bot. Missouri Bot. Gard. 39: 134-137, 1991.

New taxa:
Andinia (Luer) Luer, stat. et gen. nov.
Andinia dielsii (Mansf.) Luer, comb. nov.
Andinia pensilis (Schltr.) Luer, comb. nov.

The two closely related, Ecuadorian species included in the genus *Salpistele* (Luer, 1991) were first described in *Lepanthes*, in spite of the fact that neither had "lepanthiform" stems. They were transferred to *Salpistele* because of a similarity of the column. They differ from the Central American species of *Salpistele* in the creeping habit, instead of caespitose; echinate ovaries, instead of glabrous; fleshy, apiculate sepals, instead of membranous, with the laterals only partially connate, instead of forming a completely connate synsepal; abbreviated petals; and thick, rounded basal lobes of the lip. DNA studies (Pridgeon, pers. comm.) reveal no relationship with the Central American species.

The plants are characterized by a long, creeping, proliferating rhizome that bears at intervals an elliptical, shortly petiolate leaf. The erect, successively flowered raceme surpasses the leaf. The ovaries are densely echinate. The sepals are fleshy and apiculate with the laterals diverging above the middle. The petals are much shorter than the lip. The lip is deeply three-lobed with the auriculate, lateral lobes basal and surrounding the column. A callus is present on the anterior lobe beneath the column. As in *Lepanthes* and *Salpistele*, the column is terete and footless, with the lip attached to the base. The apex of the column forms a narrow collar around the apical anther and stigma.

Andinia (Luer) Luer, stat. et gen. nov.
Bas.: *Salpistele* subgen. *Andinia* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 39: 124, 1991.
Ety.: Named for the Andes Mountains.
Type: *Lepanthes dielsii* Mansf. = *Andinia dielsii*

Plants perennial, epiphytic, long-repent, rooting from nodes along the rhizome. Ramicauls ascending, short, non-pseudobulbous, unifoliate, **Leaf** erect, coriaceous, smooth, elliptical, acute, the base cuneate into a short petiole. **Inflorescence** an erect, lax, secund, successively several-flowered raceme, 2 to 3 flowers sometimes open simultaneously, the flowers resupinate, borne by a peduncle laterally from the ramicaul; floral bract oblique, tubular, acute; pedicels slightly longer than the floral bract; ovary trivalvate, densely echinate; **sepals** fleshy, subcarinate, apiculate, minutely ciliate, the dorsal concave, the laterals connate below the middle; **petals** narrow, acute, much shorter than the lip; **lip** fleshy, trilobed, the lateral lobes basal, rounded, concave, erect, flanking the column, the apical lobe with a central callus, the base attached to the apex of the column at the base; **column** terete, footless, the apex with a dilated margin surrounding the apical anther, rostellum and stigma; pollinia 2, obovoid, with minute viscidia.

KEY TO THE SPECIES

1 Rhizome usually ascending; apex of the lip abruptly contracted into a small, concave lobule, callus 1-lobed ..... *A. dielsii*
1' Rhizome usually descending; apex of the lip ovoid, obtuse, deeply concave, with a bilobed callus ..... *A. pensilis*

Andinia dielsii Luer, comb. nov.

Bas.: *Lepanthes dielsii* Mansf., Biblioth. Bot. 29(116): 72, 1937.
Ety.: Named in honor of Ludwig Diels of Stuttgart, Germany, who collected this species.

Syn.: *Lepanthes echinocarpa* L.O.Williams, Bot. Mus. Leafl. 9: 1, 1940.
Ety.: From the Greek *echinocarpus*, "spiny fruit," referring to the echinate capsules.

Syn.: *Salpistele dielsii* (Mansf.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 39: 134, 1991.

ECUADOR: **Chimborazo**: Tipococha, in mountainous forest, 16 Aug. 1933, *L. Diels 554* (Holotype destroyed at B). **Bolivar**: cloud forest at the pass north of Chillanes, alt. 2650 m, 25 Mar. 1984, *C. Luer, A. Hirtz, S. Dalström, T. Höijer & J. Kuijt 9709* (MO, Neotype here designated).

For further collections, distribution map, and illustration, see *Icones Pleurothallidinarum*-8, Monogr. Syst. Bot. Missouri Bot. Gard. 39: 134, 1991.

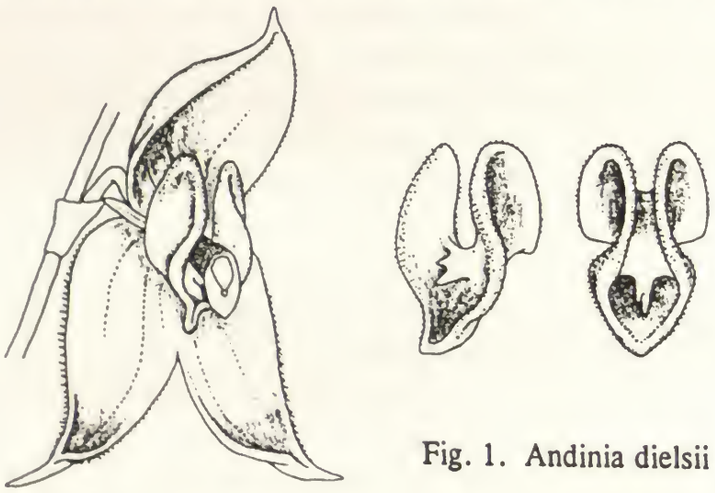


Fig. 1. Andinia dielsii

Andinia pensilis (Schltr.) Luer, comb. nov.

Bas.: *Lepanthes pensilis* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 8: 55, 1921.
Ety.: From the Latin *pensilis*, "pendent," referring to the habit.

Syn.: *Lepanthes lancipetala* L.O.Williams, Bot. Mus. Leafl. 9: 1, 1940.
Ety.: From the Latin *lancipetalus*, "with lanceolate petals," referring to entire petals, exceptional for the genus *Lepanthes*.

Syn.: *Salpistele pensilis* (Schltr.) Luer, Monogr. Syst. Bot. Missouri Bot. Garden. 39: 136, 1991.

ECUADOR: **Imbabura**: cloud forest near Lago Mojanda, west of Otavalo, alt. 3300 m, 17 Feb. 1998, *C. Luer, J. Luer, A. Hirtz & J. del Hierro 18705* (MO, Neotype here designated); Mojanda, Nov. 1888, *A. Sodiro S.J. 169/21bis* (BR, MO). **Chimborazo**: in mountains above Riobamba, *A. Mille s.n.* (Holotype destroyed at B).

An early collection by Father Sodiro, entered above, has been discovered at BR. For further collections, distribution map, and illustration, see *Icones Pleurothallidinarum*-8, Monogr. Syst. Bot. Missouri Bot. Gard. 39: 136, 1991.

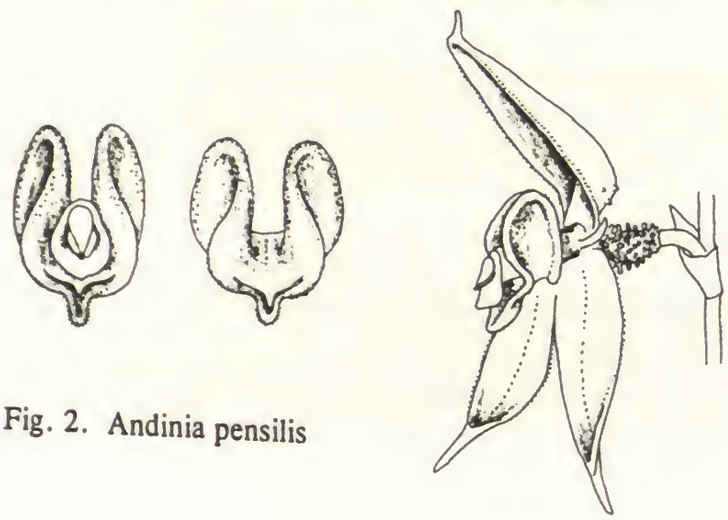


Fig. 2. Andinia pensilis

SYSTEMATICS OF THE GENUS *BARBOSELLA*

ABSTRACT

A history of *Barbosella* Schltr. is given and the genus is described. A checklist of all species described in *Barbosella*, and a key to the subgenera and species is given. Each of the 18 species is described and illustrated with a black and white drawing. Only representative collections of the distribution are presented.

New combination and taxa:
Barbosella subgen. **Cardinella** Luer, subgen. nov.
Barbosella macaheënsis (Cogn.) Luer, comb. nov.
Barbosella ricii Luer & Vásquez, sp. nov.
Barbosella vasquezii Luer, sp. nov.

The first species of the genus *Barbosella* to be described were two minute, creeping plants collected by John Miers in southern Brazil in 1841, and sent to Lindley by Professor Gardner. Lindley described them both in the genus *Pleurothallis* R.Br. the following year as *P. gardneri* and *P. miersii*.

The third species of the genus to be described was collected by Hartweg near Popayán, Colombia, and assigned to the genus *Restrepia* H.B.K. by Lindley in 1845 as *R. cucullata*. Two other collections of this variable, widely distributed species were described later: *R. rhynchantha* from Peru by Reichenbach in 1854, and *R. varicosa* from Ecuador by Lindley in 1859.

The fourth species of the future genus *Barbosella* was described by Reichenbach in 1877 as *Restrepia prorepens* from a Costa Rican collection by Endres. Endres suggested to Reichenbach that this species probably represented a new genus, but the idea was unheeded. Except for the Brazilian *Pleurothallis gardneri*, which was redescribed in 1882 by J. Barbosa Rodrigues as *R. microphylla*, no other species of *Barbosella* was described in the nineteenth century.

In the early part of the twentieth century, seven species later attributed to *Barbosella* were described in *Restrepia*, and two each in *Masdevallia* and *Pleurothallis*. Realizing that two distinct genera were customarily treated in *Restrepia*, Schlechter (1918) separated from *Restrepia* into *Barbosella* those species foreign to *Restrepia* as typified by *R. antennifera* H.B.K. He transferred 14 epithets (encompassing seven species) from *Restrepia* to create the newly proposed *Barbosella*. In his criteria for the genus he mentioned an articulation of the base of the lip to the bulbous tip of the column-foot, but did not describe the typical "ball-and-socket" joint. One nonconforming species was removed from *Barbosella* to *Barbrodria*, because of the simply hinged lip and a short, nonhooded, apical anther; *B. kegelii* (Rchb.f.) Schltr. with six pollinia was returned to *Pleurothallis*; and *B. reichenbachiana* (Endres ex Rchb.f.) Schltr. with four pollinia was transferred to *Restrepiopsis* Luer.

Oakes Ames and Charles Schweinfurth (1934) and L.O. Williams (1939) thought it was "clear" that *Barbosella* was untenable and mostly, if not entirely, referable to *Pleurothallis*. They reduced to *Pleurothallis* all the species not already having been treated in *Pleurothallis*.

Schlechter designated no type for *Barbosella*. Angely (1973) cited *P. miersii* Lindl. as the lectotype, but this species, removed to *Barbrodria* in 1981, differs from all the others because the anther and stigma are apical, and the lip with revo-

lute sides is hinged simply to the column-foot. The treatment of *Barbrodria* follows *Barbosella*. *Pleurothallis gardneri* Lindl. was designated as the lectotype (Luer, 1981).

The species of *Barbosella* are distributed from Central America through the Andes into southern Brazil and adjacent Argentina with one species in the Antilles. Only 18 species of *Barbosella* are recognized in this work. All the species are closely related and basically similar to each other. Although vegetatively variable in size and shape, the species are characterized by basically similar flowers with a distinctly formed "ball-and-socket" articulation of the free, bulbous tip of the column-foot into a cavity at the base of the lip. Only three species differ distinctly from the majority, and these are easily recognized (*B. australis* with a large, retuse lip, *B. circinata* with a non-resupinate flower, and *B. gardneri* with an acuminate apex of the lip).

In Central America and the Andes, bewildering mixtures of closely allied, intergrading taxa constitute complexes impossible to classify unless each clone be given a name, an untenable solution. Very briefly, *B. cucullata* is large, coarse and commonly repent with a stout rhizome, thick, more or less semiterete leaves, and sepals usually over three centimeters long. Densely caespitose plants with very narrow leaves and with similar, large flowers are treated as *B. fuscata*. *Barbosella prorepens* is similar to *B. cucullata* but with a smaller habit and smaller flowers with sepals usually under one and a half centimeters long. The plants are shortly repent as well as caespitose, and to disturb all thinking, both repent and caespitose components sometimes occur on the same specimens of both *P. cucullata* and *P. prorepens*. Intermediate specimens far outnumber the identifiable extremes upon which names have been assigned. *Barbosella dolichorhiza* falls somewhere among the intermediates. Except for size and color (green, yellow, brown to purple), the flowers of these blending concepts are fundamentally the same. Variations exist in all combinations of vegetative and floral characters throughout their ranges. Identification of the majority will rely upon personal judgment.

Barbosella is the only pleurothallid genus in which vegetative characters alone are the determining criteria for identification of some species. Perhaps in the future, study of the DNA or genomes will prove that two or more look-alike species have been lumped into one.

Except for *B. cogniauxiana*, the species of Brazil and Argentina are distinct from the species of the Andes. All are small and long-repent. The most widely distributed, frequent and vegetatively variable concept is *B. cogniauxiana*, the smaller, austral counterpart of *B. prorepens*.

The species of *Barbosella* are characterized either by a very short rhizome that produces densely caespitose plants, or a long, creeping rhizome that produces creeping or vine-like plants. Some individual plants produce simultaneously both caespitose and repent portions. The ramicaul is always abbreviated, much shorter than the fleshy leaf. The flower is always solitary and resupinate (except for *B. circinata*), and borne by an erect peduncle produced laterally without an annulus from below the apex of the ramicaul. The resupination of the flower is accomplished by a 180° backward bending of the flower at the apex of the peduncle. No twisting of the pedicel or ovary occurs. The same backward bending occurs in *Brachionidium* Lindl., *Restrepia*, *Trisetella* Luer, and many species of *Pleurothallis*. The pedicel

and ovary of *B. circinata* arch through 360° to bear the flower in a non-resupinate position.

Produced from near the adaxial end of the pedicel is a more or less well-developed filament. It is the remnant of a vestigial flower-bud, present to some degree in most, if not all, single-flowered, pleurothallid species, or on the pedicel of the final flower of racemose species. Its presence or absence is not diagnostic. The dorsal sepal is free from the broader lateral sepals that are partially or wholly connate into a synsepal. The petals are slender and entire.

The lip is proportionately small with a basal cavity, except in *B. trilobata*, that articulates with the free, bulbous tip of the column-foot. The anterior margin of the cavity at the base of the lip is formed by a pair of callous plates or lamellae of the disc that fold inward to meet in the midline. These plates are prominent in *B. trilobata*, but fail to form a basal cavity. A short distance toward the apex of the lip, the lamellae part to create a smaller, much shallower cavity near the center of the lip which may be wholly lacking. The anterior cavity, if present, sometimes connects with the basal cavity beneath the infolded lamellae.

The column is semiterete with a hooded, ventral anther and stigma. Within the anther cap the pollinia are free, equal-sized, and four in number. The base of the column is developed with a distinct column-foot. The tip is free and more or less bulbous (except in *B. trilobata*), and clasped within the cavity at the base of the lip.

One Brazilian species (*B. miersii*) has been removed into a unispecific genus, because the morphology of both the lip and the column contradict the criteria upon which the genus *Barbosella* is based.

BARBOSELLA

Barbosella Schltr., Repert. Spec. Nov. Regni Veg. 15: 259, 1918.

Lectotype: *Pleurothallis gardneri* Lindl., Edwards' Bot. Reg. 28: Misc. 83, 1842. = *Barbosella gardneri* (Lindl.) Schltr., Repert. Spec. Nov. Regni Veg. 15: 261, 1918 (Luer, Selbyana 5: 386, 1981).

Ety.: Named in honor of J. Barbosa Rodrigues, renowned investigator of the Orchidaceae of Brazil.

Syn.: *Restrepia* H.B.K. sect. *Ramulosae* Lindl., Folia Orchid. *Restrepia* 3, 1859.

Lectotype here designated *R. cucullata* Lindl., Ann. Mag. Nat. Hist. ser. 1, 15: 108, 1845. = *Barbosella cucullata* (Lindl.) Schltr., Repert. Spec. Nov. Regni. Veg. 15: 261, 1918.

Ety.: From the Latin *ramulosus*, "with branches," referring to the habit.

Syn.: *Restrepia* H.B.K. sect. *Prorepentes* Rchb.f., Gard. Chron. 1: 810, 1877.

Type: *Restrepia prorepens* Rchb.f., Gard. Chron. 1: 810, 1877 = *Barbosella prorepens* (Rchb.f.) Schltr., Repert. Spec. Nov. Regni Veg. 15: 263, 1918.

Ety.: From the Latin *prorepens*, "repent," referring to the creeping habit.

Plants perennial, very small to medium in size for the subtribe, weak to robust, epiphytic to terrestrial or lithophytic, densely caespitose to long-repent, the rhizome stout to slender; roots few to many, slender to fleshy. Ramicauls ascending to erect, slender to stout, non-pseudobulbous, considerably shorter than the leaf, unifoliate, enclosed by a few basal sheaths, the inflorescence emerging laterally without an annular ring (annulus) from a short distance below the apex (the leaf-stem abscission layer). **Leaf** erect, ascending or occasionally prostrate, more or less thickly coriaceous, smooth, green or dark green, sometimes suffused with purple, elliptical, ovate, suborbicular, linear, to terete, the apex acute, subacute to obtuse, shallowly notched with a mucro in the sinus, the base cuneate, linear, to rounded, with or without an obvious petiole, **Inflorescence** a solitary flower, borne by a slender, erect peduncle, shorter or longer than the leaf, with a bract basal or below the middle; floral bract thin, tubular, oblique, acute, enclosing the pedicel and often much of the ovary; pedicel stout, usually shorter than the floral bract, with a small or conspicuous filament (vestigial remnant of the next flower); ovary smooth, trivalvate; **sepals** conspicuous, membranous, white, green, yellow, orange, brown, or purple, the dorsal sepal free, more or less erect, narrowly linear to narrowly triangular, more or less thickened above the middle, the lateral sepals variously connate or adherent (rarely free) to the apex and expanded into a prominent

synsepal, acute to obtuse; **petals** entire, narrowly linear-ovate, more or less thickened above the middle; **lip** ligulate, more or less thick and fleshy, smooth to minutely verrucose, the apex obtuse to rounded or narrowly obtuse, the disc more or less bi- or tricallous near the middle, often with a shallow cavity, the base rounded with a distinct concavity, except for *B. trilobata*; **column** stout, semiterete, hooded, broadly longitudinally winged above the middle, the anther, rostellum and stigma ventral, the pollinia 4 (2 pairs), free, yellow, pyriform, with or without a granular viscidium, the base of the column developed into a column-foot with the apex of the ovary, and with the tip extending beyond the ovary into a free, more or less bulbous apex, the posterior margin of the cavity of the lip thinly hinged to the back surface.

Barbosella subgen. **Barbosella**

Type: *Pleurothallis gardneri* Lindl. = *Barbosella gardneri*.

This subgenus is characterized by the classical "ball and socket" articulation of the concave base of the lip with the bulbous apex of the column-foot. It contains all the species of the genus except for *B. trilobata*, which is segregated into a unispecific subgenus.

Barbosella subgen. *Cardinella* Luer, subgen. nov.

Type: *Barbosella trilobata* Pabst.

Ety.: From the Latin *cardo*, "a hinge," referring to the attachment of the lip to the column.

Labellum bilamellatum ad pedem columnae simpliciter cardinatum.

This subgenus is characterized by the minute, long-repent habit, indistinguishable from that of some other Brazilian species of *Barbosella*, and a simple hinge-like articulation of the base of the lip with the non-bulbous apex of the column-foot. Above the base of the lip a pair of erect, parallel lamellae appear to be related to precursors of the lamellae that form the typical cavity at the base of the lip as found in all other species of *Barbosella*.

BINOMIALS PUBLISHED IN *BARBOSELLA*

B. anaristella (Kraenzl.) Garay = **B. dolichorhiza**

B. australis (Cogn.) Schtr. .....Fig. 1

B. bradeorum Schltr. = **B. dolichorhiza**

B. brenesii Schltr. = **B. prorepens**

B. caespitifica (Lehm. & Kraenzl.) Garay = **B. prorepens**

B. circinata Luer .....Fig. 2.

B. cogniauxiana (Speg. & Kraenzl.) Schltr. .....Fig. 3, 4.

B. crassifolia (Edwall) Schltr. .....Fig. 5.

B. cucullata (Lindl.) Schltr. .....Fig. 6, 7, 8.

B. dolichorhiza Schltr. .....Fig. 9.

B. dusenii (A.Samp.) Schltr. .....Fig. 10.

B. dussii (Cogn.) Dod = **B. prorepens**

B. fuscata Garay .....Fig. 11, 12.

B. gardneri (Lindl.) Schltr. .....Fig. 13.

B. geminata Luer .....Fig. 14.

B. gracilis (Edwall) Schltr. *apud* Pabst, *nomen nudum*

B. hamburgensis (Kraenzl.) Hoehne = **B. crassifolia**

B. handroi Hoehne = **B. cogniauxiana**

B. kegelii (Rchb.f.) Schltr. = **Pleurothallis kegelii** Rchb.f.

B. loefgrenii (Cogn.) Schltr. = **B. australis**

B. longiflora (Kraenzl.) Schltr. = **B. cucullata**
B. longipes Schltr. = **B. cucullata**
B. macaheënsis (Cogn.) Luer.....Fig. 15.
B. microphylla (Barb.Rodr.) Schltr. = **B. gardneri**
B. miersii (Lindl.) Schltr. = **Barbrodria miersii**
B. monstrabilis (Ames) Garay = **B. prorepens**
B. orbicularis Luer.....Fig. 16.
B. porschii (Kraenzl.) Schltr. = **B. cogniauxiana**
B. prorepens (Rchb.f.) Schltr. .....Fig. 17, 18, 19.
B. reichenbachiana (Endres) Schltr. =
Restrepiopsis reichenbachiana (Endres) Luer
B. rhynchantha (Rchb.f. & Warsz.) Schltr. = **B. cucullata**
B. ricii Luer & Vásquez .....Fig. 20.
B. riograndensis Dutra *apud* Pabst = **B. cogniauxiana**
B. schista Luer & Escobar.....Fig. 21.
B. spiritu-sanctensis (Pabst) F.Barros & Toscano.....Fig. 22.
B. tolimensis (Kraenzl.) Garay *nomen illeg.* = **B. prorepens**
B. trilobata Pabst .....Fig. 23.
B. varicosa (Lindl.) Schltr. = **B. cucullata**
B. vasquezii Luer .....Fig. 24.

KEY TO THE SUBGENERA AND SPECIES OF *BARBOSELLA*

Subgen. *Cardinella*

1 Lip simply hinged to the tip of the column-foot.....*B. trilobata*

Subgen. *Barbosella*

1 Lip with a concave base articulated with a bulbous tip of the column-foot.....2

2 Plant minute, long-repent; leaves mostly less than 6 mm long 3
2' Plant with leaves more than 8 mm long 8

3 Leaves orbicular 4
3' Leaves elliptical 6

4 Peduncle less than 5 mm long.....*B. orbicularis*
4' Peduncle more than 12 mm long.....5

5 Lip with the middle lobe narrower than a lateral lobe.....*B. crassifolia*
5' Lip with the middle lobe broader than a lateral lobe.....*B. spiritu-sanctensis*

6 Lip ligulate, not three-lobed .....*B. dusenii*
6' Lip three-lobed 7

7 Lip with tall, broad, subacute, lateral lobes, simply hinged at the base (Subgen. *Cardinella*) .....*B. trilobata*
7' Lip with low, broadly rounded, lateral lobes, articulated at the base.....*B. gardneri*

8 Plant large and robust for the genus; sepals more than 25 mm long.....9
8' Sepals less than 25 mm long 10

9 Plant repent to caespitose; leaves 5-10 mm wide.....*B. cucullata*
9' Plant densely caespitose, leaves 2-3 mm wide.....*B. fuscata*

10 Rhizome 3-8 cm long between ramicauls.....*B. geminata*
10' Rhizome usually less than 1.5 cm long between ramicauls.....11

11 Ovary and pedicel curved nearly 360°.....*B. circinata*
11' Ovary and pedicel not acutely curved 12

12 Lip retuse at the apex.....*B. australis*
12' Lip not retuse at the apex 13

13 Lateral sepals free above basal fourth; lip bicallous above the middle....*B. schista*
13' Lateral sepals connate from near the middle to the apex.....14

14 Plant densely congested; leaves fusiform with very short ramicauls.....*B. ricii*
14' Plant repent; leaves not fusiform with very short ramicauls.....15

15 Plant stout with thickly coriaceous leaves 3-4.5 cm long; lip with a pair of thin, converging lamellae on middle third.....*B. vasquezii*
15' Plant and lip not as above.....16

16 Sepals 7 mm long; lip concave .....*B. macaheënsis*
16' Sepals 9-25 mm long.....17

17 Leaves variable, ca. 10 mm long if broadly elliptical, up to 20 mm long if narrowly elliptical; sepals 10-15 mm long; lip indistinctly and shallowly concave.....
17 Leaves narrowly elliptical, 15-50 mm long; lip with a central cavity.....*B. cogniauxiana*
.....18

18 Sepals between 18 and 25 mm long.....*B. dolichorhiza*
18' Sepals usually less than 13 mm long.....*B. prorepens*

Barbosella australis (Cogn.) Schltr., Repert. Spec. Nov. Regni Veg. 15: 260, 1918.

Bas.: *Restrepia australis* Cogn., Fl. Bras. 3(6): 564, 1906.

Ety.: From the Latin *australis*, "southern," referring to the distribution of the genus.

Syn: *Restrepia loefgrenii* Cogn., Fl. Bras. 3(6); 565, 1906.

Ety.: Named in honor of Albert Löfgren who collected and illustrated this species.

Syn.: *Barbosella loefgrenii* (Cogn.) Schltr., Repert. Spec. Nov. Regni Veg. 15: 262, 1918.

Syn.: *Barbosella australis* var. *genuina* Hoehne, Arq. Bot. Estado Sâo Paulo 2(4):74, 1947.

Syn.: *Barbosella australis* var. *latipetala* Hoehne, Arq. Bot. Estado Sâo Paulo 2(4):74, 1947.

Syn.: *Barbosella australis* var. *loefgrenii* (Cogn.) Hoehne, Arq. Bot. Estado Sâo Paulo 2(4):74, 1947.

Plant small, epiphytic, long-repent, up to 20 cm in length, the rhizome comparatively stout, elongated, occasionally branching, 5-10 mm long between ramicauls, with a loose, tubular sheath near the middle; roots slender, produced singly at the base of the ramicauls. Ramicauls ascending, 2-5 mm long, enclosed by 1-2 thin, tubular sheaths. **Leaf** suberect, thickly coriaceous, elliptical, acute, 15-25 mm long, 6-10 mm wide, cuneate below into a petiole 2-3 mm long. **Inflorescence** a solitary flower, produced singly; peduncle slender, erect, 15-35 mm long; floral bract thin, oblique, 3-4 mm long, enclosing the pedicel and part of the ovary; pedicel 1 mm long, with a filament 3 mm long; ovary smooth, 2.5 mm long; **sepals** membranous, pale yellow-green, more or less suffused with pale purple, cellular-glandular above the middle, the dorsal sepal free, suberect, narrowly ovate, narrowly obtuse, 13-21 mm long, 3 mm wide, 3-veined, the lateral sepals narrowly ovate, oblique, concave basally, 14-22 mm long, 5-6.5 mm wide, 3-veined, connate 5-10 mm; **petals** membranous, colored as the sepals, narrowly ovate, acute, 7-11 mm long, 2.5-3.25 mm wide, the margins cellular-glandular; **lip** yellow, suffused with purple, suboblong, 5-7 mm long, 3 mm wide, the apex shallowly bifid into two obtuse angles, the sides broadly angled, the disc with a pair of pyramidal calli below the middle, the base rounded, deeply concave, articulated with the bulbous apex of the column-foot; **column** slender, 4-5 mm long, the apex hooded, bidentate, the foot thick with the apex of the ovary, the apex free, bulbous.

BRAZIL: **Rio Grande do Sul**: Ferromecco, 1889, *A. Kunert 40* (Holotype: BR). **Paraná**: Roca Nova, 18 May 1909, *P. Dusén 8138* (AMES, HBG, S); Munic. Quatro Barras, Rancho Velho, 20 June 1945, *G. Hatschbach 12634* (US). **Rio de Janeiro**: epiphytic in forest above Petrópolis, alt. 1500 m, cultivated by Verboonen, 21 Oct. 1988, *C. Luer 13756* (MO). **Sâo Paulo**: humid forest near Bocaina, 26 Mar. 1894, Löfgren illustr. 36, *A. Löfgren & G. Edwall Comm. Geogr. & Geol. 2303* (holotype of *B. loefgrenii*: SP; isotype: BR); Alto da Serra, Mata da Estaçâo Biologica, *A. Gehrt 5612* (AMES, HB, NY).

When Cognaiux first described this species, it was the southernmost known species described in the genus *Restrepia.* He simultaneously described a smaller form as *R. loefgrenii*. *Barbosella australis* is variable in size in its range through the mountains of southern Brazil. An unusually large-flowered form illustrated here is cultivated at Orquidário Binot in Petrópolis and at J & L Orchids at Easton, CT.

The species is recognized by the creeping habit, and conspicuous, membranous flowers larger than most of the suberect, elliptical leaves. The flowers are characterized by the oblong lip, broadly forked at the apex, and a pair of pyramidal calli on the disc in front of the basal cavity.

Barbosella circinata Luer, Selbyana 3: 204, 1977.

Ety.: From the Latin *circinatus*, "coiled around at the apex," referring to the 180° bend of the pedicel and ovary in addition to the 180° bending backward of the flower.

Plant small, epiphytic, caespitose to shortly repent, the rhizome stout, branching, 2-7 mm long between ramicauls; roots slender, produced from nodes along the rhizome. Ramicauls ascending to erect, stout, 3-7 mm long, enclosed by 1-2 thin sheaths. **Leaf** erect, thickly coriaceous, the surface minutely subpustulate, narrowly elliptical, acute, 2-3 cm long, 0.4-0.5 cm wide, narrowly cuneate below into the subpetiolate base. **Inflorescence** a solitary, inverted flower, borne by a slender, erect peduncle 5-7 cm long, with a close bract below the middle; floral bract thin, tubular, oblique, 4 mm long, enclosing the pedicel; pedicel 4 mm long, bent at the apex, with a filament equally long; ovary arcuate 180°, lightly ribbed; **sepals** membranous, pale yellow, lightly suffused with brown, the middle sepal lowermost, narrowly linear-triangular, 13 mm long, 1.5 mm wide, 3-veined, slightly thickened above the middle, the lateral sepals connate to the apex into an ovate, deeply concave synsepal, 13 mm long, 5 mm wide unexpanded, the apex slightly acuminate, acute, minutely bidentate; **petals** parallel, narrowly ellip-

tical, acute, 5 mm long, 0.9 mm wide, microscopically verrucose; **lip** oblong, fleshy, broadly obtuse, 3.5 mm long, 1 mm wide, the disc lightly longitudinally bicallose, channeled, the base concave to accommodate the end of the column-foot; **column** stout, semiterete, broadly winged above the middle, 3.5 mm long, the foot 1 mm long with the end bulbous.

PANAMA: **Chiriquí**: epiphytic in cloud forest above Camp Escopeta, Cerro Colorado, alt. 1700 m, 16 Feb. 1977, *C. Luer, J. Luer & R.L. Dressler 1575* (Holotype: SEL). **Coclé**: El Valle, collected by A. Maduro, cultivated at Finca Dracula, Cerro Punta, 18 Nov. 1998, *C. Luer 18965* (MO).

This species with non-resupinate flowers is unique in the genus. In all the other species the middle sepal is presented uppermost while the synsepal and lip are lowermost. This position is accomplished by a 180° adaxial, or backward bend of the flower at the apex of the peduncle. In *B. circinata* the middle sepal is presented lowermost with the synsepal and lip uppermost. This is accomplished by an additional 180° bend of the pedicel and ovary, not a twist.

Barbosella circinata is apparently endemic in the wet forests of western Panama. It is most closely allied to the common *B. prorepens*, with which it is sympatric. The uppermost synsepal of *B. circinata* is more deeply concave and acuminate. The unpaired sepal, petals and lip are not remarkably different.

Barbosella cogniauxiana (Spegazzini & Kraenzl.) Schltr., Repert. Spec. Nov. Regni Veg. 15: 260, 1918.

Bas.: *Restrepia cogniauxiana* Spegazzini & Kraenzl., Orchis 2: 127, t. 21, 1908
Ety.: Named in honor of Alfred Celestin Cogniaux, Belgian botanist, well-known for his work in Brazilian orchids.

Syn.: *Restrepia porschii* Kraenzl., Kongl. Svenska Vetenskapsakad. Handl. 46(10): 51, 1911.
Ety.: Named in honor of Professor Otto Porsch of Vienna, Austria, a friend of Kränzlin.

Syn.: *Barbosella porschii* (Kraenzl.) Schltr., Repert. Spec. Nov. Regni Veg. 15: 263, 1918.

Syn.: *Barbosella handroi* Hoehne, Bol. Agric. (São Paulo) 34: 613, 1933.
Ety.: Named in honor of Oswaldo Handro, gardener of the Jardim Botanico, São Paulo.

Syn.: *Barbosella riograndensis* Dutra *apud* Pabst, Sellowia 10: 133, 1959, *nomen nudum.*

Syn.: *Pleurothallis spegazziniana* L.O.Williams, Lilloa 6: 243, 1941.
Ety.: Named in honor of Carlo Luigi Spegazzini, Argentinan botanist, co-author of *R. cogniauxiana.*

Plant small, epiphytic, long-repent, scandent, the rhizome comparatively stout, elongated, occasionally branching, 3-8 mm long between ramicauls, enclosed by 2 thin, tubular sheaths; roots fleshy, produced from nodes along the rhizome. Ramicauls ascending, 2-4 mm long, enclosed by 2 thin, tubular sheaths. **Leaf** suberect, thickly coriaceous, broadly to narrowly elliptical, acute to obtuse, 8-25 mm long, 3-7 mm wide, narrowed below into the subpetiolate base. **Inflorescence** a solitary flower, produced singly; peduncle slender, erect, 3-5 cm long; floral bract thin, 2-4 mm long, enclosing the pedicel and part of the ovary; pedicel stout, 1 mm long, with a filament ca. 1.5 mm long; ovary 1-1.5 mm long; **sepals** membranous, light yellow, or light yellow-green, the dorsal sepal free, erect, narrowly linear, acute, 11-16 mm long, 1-1.5 mm wide, 3-veined, the lateral sepals connate to near the apex into a narrowly linear-ovate, obtuse, more or less shortly bifid lamina, concave at the base, 11-16 mm long, 3-4.5 mm wide, 6-veined together; **petals** yellow, narrowly ovate, acute, 6.5-8.5 mm long, 1 mm wide, long-attenuate and semiterete above the middle; **lip** yellõw, suffused with purple medially, thick, fleshy, ligulate-oblong, slightly dilated near the middle, 3.5-3.75 mm long, 1.3-1.5 mm wide, the apex subacute to obtuse, the disc with a pair of low, indistinct carinae near the middle, featureless toward the apex, shallowly concave below the middle, the base rounded, deeply concave, articulated with the bulbous apex of the column-foot; **column** stout, winged above the lower third, 2 mm long, the apex cucullate, the foot thick at the apex of the ovary, the apex free, bulbous.

ARGENTINA: **Misiones**: near the village of San Pedro, June 1908, *Spegazzini s.n.* (Holotype: LPS; Isotype: HBG); Gral. M. Belgrano, Bernardo de Irigoyen, La Intercontinental, *M.N. Correa et al. 7023* (BAB); Gral. M. Belgramo, Zona Delicia near C. Joisson, alt. 600 m, 8 Feb. 1989, *A. Johnson 024* (MO); El Piñalito, San Pedro, alt. 750 m, 10 Jan. 1991, *A. Johnson 0168* (MO), C. Luer illustr. 15298.
BRAZIL: **Paraná**: Villa Velha, alt. 900 m, 4 Feb. 1909, *P. Dusén 8032* (holotype of *B. porschii*: S; isotypes: AMES, NY); Villa Velha, 27 Apr. 1909, *P. Dusén 8473* (HBG); Villa Velha, Piracicaba, alt. 100 m, 20 Nov. 1967, *F.C. Brieger 11742* (M); Fortalera, 26 Feb. 1910, *P. Dusén 9826* (AMES, S); Roca Nova, 16 Mar. 1911, *P. Dusén 11552* (AMES, S); Jaguariahyva, 5 Mar. 1916, *P. Dusén 17962* (AMES,

NY, S); 20 Mar. 1912, *P. Dusén 14007* (S). **Santa Catarina**: 1951, *J.R. Reitz 4805* (AMES). **Rio de Janeiro**: above Petrópolis, purchased from Orquidário Binot, flowered in cultivation by J & L Orchids, Easton, CT., 5 May 1990, *C. Luer 14750* (MO). **Santa Catarina**: Horto Forestal I.N.P. Ibirama, alt. 300 m, 6 Mar. 1956, *R. Klein 1904* (NY). **São Paulo**: epiphytic in Parque do Estado, Jardim Botânico, 15 Dec. 1930, *O. Handro s.n.* (holotype of *B. handroi*: SP; isotypes: AMES, HB, NY,), C. Luer illustr. 14733. Without locality, cultivated by Floralia in Petrópolis, *C. Luer 18270* (MO).

This species is widely distributed in southern Brazil and adjacent northern Argentina. It is closely related to the frequent and widely distributed *B. prorepens* of Central America and the Andes, and can be considered an austral counterpart. *Barbosella cogniauxiana* differs from *B. prorepens* in having a smaller habit with a longer, slenderer, creeping rhizome. The small, erect leaves vary from broadly elliptical and obtuse to narrowly obovate and acute. Extremes in the shape of the leaves suggest specific differences, but any trivial variation in the floral parts is not constant in the vegetative variations.

The floral parts of *B. cogniauxiana* and *B. prorepens* are extremely similar. The lip of *B. cogniauxiana* is broadly and shallowly concave above the concave base as seen in *B. prorepens*, with a pair of low, indistinct calli near the middle. The lip of *B. prorepens* has a pair of more or less well-defined calli flanking the shallow cavity above the basal cavity, and often also with three, low calli on the apical third.

Barbosella crassifolia (Edwall) Schltr., Repert. Spec. Nov. Regni Veg. 15: 261, 1918.

Bas.: *Restrepia crassifolia* Edwall, Revista Centro Sci. Campinas 2: 193, 1903.
Ety.: From the Latin *crassifolius*, "thick-leaved," referring to the foliage.

Syn.: *Pleurothallis hamburgensis* Kraenzl., Kongl. Svenska Vetenskapsakad. Handl. 46: 49, 1911.
Ety.: Named for Hamburgerberg in Rio Grande do Sul where the plant was collected.

Syn.: *Barbosella crassifolia* var. *aristata* Hoehne, Arq. Bot. Estado Sâo Paulo n.s. forma *minor* 2(4): 75, t. 23, fig. 3, 1947.

Syn.: *Barbosella crassifolia* var. *aristata* Hoehne, Arq. Bot. Estado Sâo Paulo 2(4): 75, 1947.
Syn.: *Barbosella crassifolia* var. *genuina* Hoehne, Arq. Bot. Estado Sâo Paulo 2(4): 75, 1947.
Syn.: *Barbosella crassifolia* var. *minor* Hoehne, Arq. Bot. Estado Sâo Paulo 2(4): 75, 1947.
Syn.: *Barbosella hamburgensis* (Kraenzl.) Hoehne, Arq. Bot. Estado Sâo Paulo 2(4): 75, 1947.
Syn.: *Barbosella crassifolia* var. *hamburgensis* (Kraenzl.) Garay, Arch. Jard. Bot. Rio de Janeiro 12: 178, 1952.

Plant very small, epiphytic, long-repent, up to 5 or 10 cm in length, forming dense mats, the rhizome slender, elongated, frequently branching, 1-4 mm long between ramicauls, enclosed by 1-3 thin, tubular sheaths; roots slender but as thick as the rhizome, produced singly at nodes along the rhizome. Ramicauls ascending, 0.5-0.75 mm long, enclosed by 1 thin, tubular sheath. **Leaf** prostrate, thickly coriaceous, suborbicular to elliptical, the apex entire, obtuse to rounded, 3-8 mm long, 2.5-3 mm wide, the rounded base contracted into the nearly absent petiole. **Inflorescence** a solitary flower, produced singly by a slender, erect peduncle, 15-28 mm long, with a minute bract below the middle; floral bract oblique, 1 mm long, enclosing the pedicel; pedicel 0.25-0.5 mm long, with a filament 1 mm long; ovary smooth, 0.75-1 mm long; **sepals** membranous, pale yellow, occasionally suffused with purple toward the base, the dorsal sepal free, erect, narrowly ovate, acute, 4 mm long, 1 mm wide, 3-veined, the lateral sepals ovate, oblique, connate 2.5 mm into an ovate, bifid synsepal, 3.5 mm long, 3.5 mm wide, 6-veined, the apices acute; **petals** membranous, pale yellow, narrowly linear-ovate, acute, 4 mm long, 0.8 mm wide; **lip** dark purple, ovate-trilobed, 2.5-3 mm long, 2 mm wide expanded, the apical lobe ovate-oblong, subacute to obtuse, the lateral lobes near the middle, erect, broadly triangular, oblique, obtuse, the disc smooth except for a low pair of converging calli above the base, the base rounded with a shallow cavity to accommodate the apex of the column-foot; **column** slender, 1.5 mm long, the apex hooded, denticulate, the foot 1 mm long, the apex free, articulated with the base of the lip.

BRAZIL: **São Paulo**: epiphytic in forest near Morro Pellado, *G. Edwall s.n.* (Holotype: ?); Butantan, 6 Sept. 1917, *A. Gehrt 495* (AMES, NY), C. Luer illustr. 14790; Villa Emma, *A.C. Brade 8127* (AMES, US). **Minas Gerais**: Munic. of Betim, Fazenda do Cabuí, near Contagem, alt. 950 m, 7 Oct. 1945, *L.O. Williams & V. Assis 7608* (AMES, MO). **Rio Grande do Sul**: epiphytic on tree trunks of primary forest, Hamburgerberg, 27 Oct. 1892, *C.A.M. Lindman 459* (holotype of *P. hamburgensis*: HBG; isotypes: AMES, S). **Bahia**: Rio de Contas, Pico das Almas, alt. 1500 m, 12 Dec. 1988, *R.M. Harley 27219* (CEPEC, IBUSP, K, SPF).

This species apparently is not rare in the mountains of southern Brazil. Although individually minute, the plants form dense, thick mats with numerous branching, intertwining rhizomes. The tiny leaves, sometimes more or less prostrate, vary in size from four millimeters long and three millimeters wide to eight millimeters long and two millimeters wide. Extremes of the vegetative forms appear very distinct.

The flower, about as large as the leaf when it is suborbicular, is held high above the foliage by a hairlike peduncle. The petals are longer than the sepals. The lip is three-lobed, the oblique, lateral lobes standing erect near the middle. The disc is smooth, except for a low pair of converging calli above the base.

Barbosella cucullata (Lindl.) Schltr., Repert. Spec. Nov. Regni Veg. 15: 261, 1918.

Bas.: *Restrepia cucullata* Lindl., Ann. Mag. Nat. Hist. ser. 1, 15: 108, 1845.
Ety.: From the Latin *cucullatus*, "hooded," referring to the apex of the column.

Syn.: *Restrepia rhynchantha* Rchb.f. & Warsz. Bonplandia 2: 114, 1854.
Ety.: From the Greek *rhynchanthos*, "with beaklike flowers," referring to the flowers.

Syn.: *Restrepia varicosa* Lindl., Folia Orchid. *Restrepia* 3, 1859.
Ety.: From the Latin *varicosus*, "varicose," referring to the *mucronulate* peduncle below the apex. (He might have been referring to the filament.)

Syn.: *Masdevallia longiflora* Kraenzl., Bot. Jahrb. Syst. 37: 383, 1906.
Ety.: From the Latin *longiflorus*, "with long flowers," referring to the flowers.

Syn.: *Restrepia antennifera* H.B.K. var. *angustifolia* Kraenzl., Bot. Jahrb. Syst. 26: 451, 1899.
Ety.: From the Latin *angustifolius*, "narrow-leaved," referring to the foliage.

Syn.: *Barbosella rhynchantha* (Rchb.f. & Warsz.) Schltr., Repert. Spec. Nov. Regni Veg. 15: 263, 1918.

Syn.: *Barbosella varicosa* (Lindl.) Schltr., Repert. Spec. Nov. Regni Veg. 15: 263, 1918.

Syn.: *Barbosella longipes* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 7: 118, 1921.
Ety.: From the Latin *longipes*, "a long foot," referring to the elongated rhizome.

Syn.: *Barbosella longiflora* (Kraenzl.) Schltr., Repert. Spec. Nov. Regni Veg. Beih. 9: 143, 1921.

Syn.: *Pleurothallis rhynchantha* (Rchb.f. & Warsz.) L.O.Williams, Bot. Mus. Leafl. 7: 188, 1939.

Syn.: *Pleurothallis angustisegmentata* C.Schweinf., Bot. Mus. Leafl. 10 139, 1942, nom. nov.
Ety.: From the Latin *angustisegmentatus*, "with narrow segments," referring to the floral parts.

Plant medium in size to large and robust for the genus, epiphytic, terrestrial, or lithophytic, repent or caespitose, the rhizome stout, elongated or abbreviated, 0.3-3 cm long between ramicauls; roots coarse. Ramicauls stout, ascending to erect, 0.5-2 cm long, enclosed by 2-3 thin, loose, tubular sheaths. **Leaf** erect, fleshy, thickly coriaceous, linear-obovate, subacute to obtuse, 3-12 cm long, 0.5-1 cm wide, gradually narrowed below into the subpetiolate base. **Inflorescence** a solitary flower, produced by a slender, erect, peduncle 8-18 cm long; floral bract thin, tubular, 2.5-5 mm long, enclosing the pedicel; pedicel stout, 1-2 mm long, with a filament 2-4 mm long; ovary smooth, 2-5 mm long; **sepals** membranous, yellow or yellow-green, to orange, brown, or deep purple, the dorsal sepal free, erect, narrowly linear or linear-ovate, acute, 25-45 mm long, 1-3 mm wide, 3-veined, thickened above the middle, semiterete, rarely subclavate, the lateral sepals connate to the apex into a narrowly ovate, acute lamina, concave at the base, 25-45 mm long, 6-13 mm wide, 6-veined, more or less cellular-pubescent below the middle; **petals** membranous, colored as the sepals, narrowly linear-ovate, acute, the margins cellular-erose or minutely denticulate below the middle, 7-21 mm long, 1.5-4 mm wide, thickened and terete above the middle; **lip** yellow to orange-brown, variously suffused with brown or purple, thick, fleshy, more or less oblong, 3.5-6 mm long, 1.5-2.5 mm wide, the apex obtuse to rounded, the disc indistinctly and variously 2- to 3-callous, with a shallow, ovate depression near or below the middle, the rounded base deeply concave, articulated with the bulbous apex of the column-foot; **column** yellowish, more or less suffused with purple, stout, longitudinally winged above the middle, 3-6 mm long, the apex cucullate, the foot thick at the apex of the ovary, the apex free, bulbous.

COLOMBIA: **Cauca**: Popayán, on trees in the woods of Pitayo, alt. 10,500 ft., Oct. 1843, *Hartweg 1430* of Pitayo, alt. 10,500 ft., Oct. 1843, *Hartweg 1430* (Holotype: K; Isotypes: G, LD, W); Páramo de Guanacas above Popayán, alt. 3000-3500 m, *F.C. Lehmann 6883* (lectotype of *Restrepia antennifera* var.

angustifolia: K); Páramo de Moras, alt. 2900-3400 m, 29 Oct. 1882, *F.C. Lehmann 2046* (BR, G, K, as *Restrepia cirrhopetaloides* Lehm. & Kraenzl. in ed.); Páramo de Guanacas, alt. 3000-3500 m, *F.C. Lehmann 6883* (holotype of *Restrepia antennifera* var. *angustifolia*: K); Páramo de Las Papas, Laguna de Cusiyaco, alt. 3500 m, 11 Oct. 1958, *H.G. Barclay & P. Juajibioy 5920, 6028* (AMES, MO); Mt. Puracé, Canaan, alt. 3100-3300 m, 11 June 1922, *F.W. Pennell & E.P. Killip 6631* (AMES, NY). **Antioquia**: El Retiro, Hda. Normandia, alt. 2500 m, 2 Dec. 1956, *M. Ospina H. 62* (AMES).Frontino. Alto de Cuevas, alt. 2050 m, collected by R. Escobar & E. Valencia 14 May 1983, flowered in cultivation at Colombor-quídeas 6 Apr. 1988, *C. Luer 13045* (MO). **Cundinamarca**: Oberstes Guavio Valley, alt. 3000 m, 17 Aug. 1941, *J. Renz 2612* (Herb. J. Renz); between San Miguel and Fusagasugá, alt. 2500 m, 27 Nov. 1838, *J. Renz 3818* (Herb. J. Renz); Bogotá, Quebrada del Chicó, alt. 2800 m, 24 June 1944, *M. Schneider 118* (AMES). **Nariño**: La Laguna above Pasto, alt. 10,000 ft., 7 Nov. 1878, *F.C. Lehmann s.n.* (W); above Laguna near Pasto, alt. 3000 m, 21 Feb. 1881, *F.C. Lehmann 286* (W); between Ypiales and Victoria, alt. 3200 m, 4 Nov. 1979, *C. Luer, J. Luer & A. Hirtz 4669* (SEL); without locality, *Madero s.n.* (holotype of *B. longipes* destroyed at B; neotype here designated: *F.C. Lehmann H.K.313*: K). **Norte de Santander**: Culagá, valley above Tapatá, 5 Mar. 1927, *E.P. Killip & A.C. Smith 20296, 20311* (AMES); Old dept. of Ocaña: alt. 7,000 ft., 1846-52, *L. Schlim 732* (BR, G, K, W). **Valle del Cauca**: Boquerón del Quindio alt. 3300 m, 10 Mar. 1876, *E. André 2172* (K); Barragán, Quebrada de la Chorrera, alt. 3000 m, 22 Apr. 1946, *J. Cuatrecasas 20987* (AMES). **Putumayo**: Filo de Barniz, west of Mocoa, alt. 1700 m, 8 Oct. 1959, *H.G. Barclay & P. Juajibioy 9446* (AMES, MO); Valle de Sibundoy near San Francisco. alt. 2800 m, 9 Jan. 1957, *M. Ospina & J.M. Idrobo 141* (AMES); same area, alt. 2725 m, 28 Nov. 1962, *M.L. Bristol 392* (AMES). **Tolima**: between Manizales and Fresno, alt. 3300 m. 9 Apr. 1956, *J. Renz 8624* (Herb. J. Renz).

VENEZUELA: **Carabobo**: Canoabo Road, *G.C.K. Dunsterville 235*. **Táchira**: between Revanche and Copas, alt. 2000 m, 18 May 1951, *J. Renz 6965* (Herb. J. Renz); La Fundación, alt. 2700 m, 15 May 1951, *J. Renz 6986* (Herb. J. Renz); Quebrada Agua Azul, alt. 2150-2300 m, 22 July 1979, *J. Steyermark & R. Liesner 118410* (MO, VEN); headwaters of Río Quinimarí, alt. 2500-2600 m, 11 Jan. 1968, *J. Steyermark 100677* (AMES, VEN); alt. 2700-2900 m, 17 Jan. 1968, *J. Steyermark 100166* (VEN); Paramó de Tamá, alt. 2475-2550 m, 18 May 1967, *J. Steyermark 98346* (AMES, VEN). **Yaracuy**: San Filipe, alt. 1300 m, 6 Dec. 1980, *J. Steyermark 123757* (VEN).

ECUADOR: **Azuay**: East Andes of Cuenca, Cerro Yanghuang near Pindilic, alt. 2800-3200 m, Nov. 1889, *F.C. Lehmann 6885* (AMES, K, US); North of Sevilla de Oro, alt. 8,000-9,000 ft., 27 July 1945, *W.H. Camp E-4449* (NY); El Chorro, above Molleturo, alt. 2800-2900 m, 7 Mar. 1985, *G. Harling & L. Andersson 22903* (AAU, AMES, GB). **Imbabura**: Montaña de Aujel near Tusa, alt. 9,000 ft., 23 June 1878, *F.C. Lehmann s.n.* (AMES, W); Selva Alegre, alt. 1400 m, May 1989, *A. Hirtz & X. Hirtz 4237* (K, MO). **Loja**: "Loja," *E. André s.n.* (K); above Nudo de Cajanuma, trail to Mirador, alt. 2900-3000 m, 10 Apr. 1989, *J.E. Madsen 85954* (AAU, GB, QCNE); east of Nudo de Cajanuma, near "Centro de Información," alt. 2900 m, 26 June 1988, *B. Øllgaard & L.J. Christensen 74995* (AAU); above Yangana, alt. 2400 m, 23 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10862, 10886* (MO, QCNE). **Napo**: Río Maspa below Papallacta, alt. 2500 m, 16 Jan. 1880, *F.C. Lehmann 466* (G, W); in lava bed north of Papallacta, alt. 3100 m, 22 June 1987, *C.H. Dodson & M. Chase 17201* (AMES, K, MO, QCNE). **Pichincha**: Valle de Lloa, on the trunks of trees, alt. 9,000 ft., *W. Jameson s.n.* (holotype of *R. varicosa*: K); Andes of Quito, 1855, *J. P. Couthouy s.n.* (AMES); Valle de Lloa, Feb. 1864, *W. Jameson s.n.* (W); west slope of Corazón, Silante, 2300-2500 m, Jan. 1883, *F.C. Lehmann s.n.* (H.K.312); between Calacalí and La Liberia, alt. 2200 m, 4 Apr. 1984, *C. Luer, S. Dalström, T. Höijer & A. Hirtz 10001* (MO, QCNE). **Tungurahua**: Cordillera de Llanganates, alt. 3000 m, 17 Nov. 1939, *E. Asplund 9754* (AMES); Volcán Tungurahua above Baños, alt. 3000 m, 27 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9763* (MO). **Zamora-Chinchipe**: "Loja," *E. André s.n.* (K); between Loja and Zamora, alt. 2000 m, July 1977, *C. Luer 3462* (SEL); south of Jimbura, alt. 3050 m, 21 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 12011* (MO, QCNE).

PERU: Without locality, *Warszewicz 604* (holotype of *R. rhynchantha*: W). **Huáncabamba**: *E. André s.n.* (K). **Cajamarca**: Chota, mountains west of Huambos, alt. 3100-3200 m, *A. Weberbauer 4174* (holotype of *M. longiflora*: W; isotype: G); Chota, northeast of Chota, alt. 2800 m, 17 Apr. 1983, *M.O. Dillon, I. Sánchez & M. Sánchez 6354* (F, MO); San Andrés de Cutervo, alt. 2400 m, 14 Mar. 1989, *C. Diaz et al. 3271, 3274* (MO). **Cuzco**: Paucartambo, Pillahuata, alt. 3000 m, 11 Dec. 1942, *C. Vargas 3014* (AMES); Urubamba, Machu Picchu, alt. 2040 m, 8 Jan. 1946, *C. Vargas 5549* (AMES); Convención, alt. 1950 m, 26 June 1968, *T.R. Dudley 10491* (MO, US).

BOLIVIA: **La Paz**: Yungas, alt. 6,000 ft., 1885, *H.H. Rusby 2807* (NY); Nor Yungas. below Unduavi. alt. 3000 m, 29 Feb. 1980, *J.A. Solomon 5185* (MO, NY); without locality, cultivated by Dino Menato in Chulumani, 31 Jan. 1980, *C. Luer 5040* (SEL). **Cochabamba**: Carrasco, Sehuencas, alt. 2100 m, 1993, *G. Rauer & D. Rudolph 03* (MO).

Barbosella cucullata is a frequent species widely distributed through the higher altitudes of the Andes. It is variable both vegetatively and florally. Typically, *B. cucullata* is robust with the rhizome repent and branching to form masses of more or less clumped plants. Huge, entangled masses of plants accumulate in sun-drenched habitats; long-repent plants crawl within deep, damp, darkly shaded moss.

Sometimes elongated rhizomes as well as abbreviated rhizomes are produced by the same plant, thereby creating simultaneously both caespitose and repent elements.

The leaves are thick and fleshy, usually between a half and one centimeter wide, usually over five centimeters long and borne by much shorter ramicauls. The peduncles are usually much longer than the leaf and bear a solitary, large flower with sepals usually over three centimeters long, and sometimes reaching over four centimeters long. Although the flowers vary greatly in size and color, the morphology remains surprisingly stable. The color of the flowers varies from pale yellow or green through orange and brown to purple.

A very similar but smaller taxon that does not reach the above vegetative and floral dimensions was described as *B. dolichorhiza*. Its range extends into Central America where it has been known as *B. anaristella*, published one year later.

The similar but much smaller *B. prorepens* is common within the same distribution as *B. cucullata*. Populations intermediate between it and *B. cucullata* are legion, far outnumbering the recognizable extremes. Accepting intermediate populations as *B. dolichorhiza* seems preferable to naming each variation, at which time it would become even more difficult to guess a determination.

A vegetatively distinct taxon with a similar inflorescence subject also to the same variations of size and color, but with a densely caespitose habit with slender, linear leaves no wider than three millimeters is recognized as *B. fuscata*. The flowers are indistinguishable from those of *B. cucullata*.

The type of *B. rhynchantha* is confused by the addition of a broad leaf that certainly originated from a species of another genus.

Barbosella dolichorhiza Schltr., Repert. Spec. Nov. Regni Veg. Beih. 7: 117, 1920.

Ety.: From the Greek *dolichorhiza*, "a long root," referring to the root of the herbarium specimen.

Syn.: *Masdevallia anaristella* Kraenzl., Repert. Spec. Nov. Regni Veg. Beih. 17: 417, 1921.

Ety.: From the Greek *an-*, "without," combined with the Latin *aristellus*, "with little awns," referring to the lack of sepaline tails as compared to *M. triaristella* Rchb.f.

Syn.: *Barbosella anaristella* (Kraenzl.) Garay, Orquideología 9: 114, 1974.

Syn.: *Barbosella bradeorum* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 111, 1923.

Ety.: Named for the brothers Alfred and Alexander Curt Brade who collected this specimen.

Syn.: *Pleurothallis bradeorum* (Schltr.) Ames, Hubbard & Schweinf., Bot. Mus. Leafl. 3: 39, 1934.

Syn.: *Pleurothallis anaristella* (Kraenzl.) L.O.Williams, Ceiba 1: 186, 1950.

Plant medium in size, epiphytic, caespitose to shortly repent; roots slender. Ramicauls ascending to erect, 3-10 mm long, enclosed by 2-3 thin, loose, tubular sheaths. **Leaf** erect, thickly coriaceous, narrowly linear-obovate, subacute, 2-6.5 cm long, 0.4-0.5 cm wide, narrowed below into the subpetiolate base. **Inflorescence** a solitary flower, produced by a slender, erect peduncle 4-10 cm long; floral bract thin, tubular, 3-4 mm long, enclosing the pedicel; pedicel stout, 1-3 mm long, with a filament 1-2 mm long; ovary smooth, 1.5-2 mm long; **sepals** membranous, light yellow, yellow-green, light tan, or purple, the dorsal sepal free, erect, narrowly linear-triangular, acute, 15-23 mm long, 1-1.5 mm wide, 3-veined, thickened above the middle, the lateral sepals connate to the apex into a narrowly triangular-ovate, acute lamina, concave toward the base, 14-23 mm long, 5-8 mm wide expanded, 6-veined together; **petals** membranous, colored as the sepals, narrowly linear-ovate, acute, the margins cellular erose or microscopically denticulate below the middle, 7-9 mm long, thickened and terete above the middle; **lip** yellow, purple or suffused with purple, more or less oblong, thick with thin, erect margins below the middle, 3-4.5 mm long, 1-1.5 mm wide, the apex obtuse to rounded, the disc with a pair of converging calli from either side to near the middle, with a shallow, ovate depression between them below the middle, the rounded base deeply concave, articulated with the bulbous apex of the column-foot; **column** yellow, often suffused with purple, stout, winged above the middle, 2.5-4 mm long, the apex cucullate, the foot thick with the apex free, bulbous.

COLOMBIA: **Cauca**: without locality, *M. Madero s.n.* (Holotype: destroyed at B). **Antioquia**: Mesopotamia, cultivated at Colomborquídeas, 23 May 1995, *C. Luer 17607* (MO). **Risaralda**: near Pereira, flowered in cultivation near Medellín by R. Londoño, 20 Mar. 1989, *C. Luer 14304* (MO).
ECUADOR: **Bolívar**: above Chillanes, alt. 2300 m, 25 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & A. Hirtz 9726* (Neotype of *Barbosella dolichorhiza* here designated: MO); north of Guaranda toward Facundo Vela, alt. 2800 m, 24 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & A. Hirtz 9688* (MO). **Napo**: Cosanga, alt. 2200 m, March 1984, *A. Hirtz 1592* (MO). **Sucumbíos**: La Bonita: alt. 1800 m, Feb. 1991, *A. Hirtz 5174* (MO). **Pichincha**: La Iberia, alt. 2700 m, 5 Nov. 1984, *A. Hirtz 2060* (MO). **Napo**: along Río Borja, alt. 1700 m, 16 Feb. 1990, *S. Dalström & L. Årnby 1345* (MO). **Zamora-Chinchipe**: Cordillera del Condor, south of Paquisha, Río Nangaritza, alt. 950 m, 11 Feb. 1993, *S. Dalström, T. Höijer & H. Wanntorp 1886* (MO).
PERU: **Pasco**: Oxapampa, elfin forest above Villa Rica, 20 Nov. 1987, *D. E. Bennett, A. Bennett, M. Chase & A. Vargas 4067* (MO); Puente Los Angeles below Cacazu, alt. 780 m, 17 Apr. 1993, collected by Oliveros del Castillo, *D.E. Bennett 6125* (MO); Ñagazu, near Norte Villarica, alt. 1950 m, 1 Nov. 1992, collected by J. Campoverde, *D.E. Bennett sub B 5803* (MO).
COSTA RICA: without locality, ca. 1867, *A. Endres s.n.* (holotype of *B. anaristella*: W); without locality, ca. 1867, *A. Endres 271* (W). **Alajuela**: San Isidro de San Ramón, alt. 1025 m, 12 Nov. 1923, *A.M. Brenes 678* (CR, NY); San Carlos, Zapote, alt. 1400 m, 11 Oct. 1938, *A. Smith H1276* (AMES). **Heredia**: Yerba Buena northeast of San Isidro, alt. 2000 m, 22 Feb. 1926, *P.C. Standley & J. Valero 50175* (AMES); same area, alt. 1800 m, 15 Sept. 1979, *C. Luer, J. Luer, K. Walter & C. Todzia 4191* (SEL). **San José**: Tablazo, alt. 1900 m, 2 June 1910, *A. & A. Curt Brade 1226* (Lectotype of *B. bradeorum*: RB; illustr.: AMES); La Hondura de San José, 27 Oct. 1932, *A.M. Brenes 166* (AMES, CR); Vásquez de Coronado, alt. 1300 m, 18 Dec. 1990, *S. Ingram & K. Farrell 810* (CR, SEL). **Cartago**: Moravia, 1400 m, Oct. 1937, *J. Valerio 2440* (AMES).
PANAMA: **Chiriquí**: Camp Hornito, Fortuna dam site toward Cerro Fortuna, alt. 1200 m, 16 Aug. 1976, *R.L. Dressler 5406* (MO). **Coclé**: El Valle, alt. ca. 1000 m, 30 June 1982, collected by H. Butcher, *R.L. Dressler 6058* (MO); alt. 1000 m, Dec. 1979, *C. Luer, A. Luer, R.L. Dressler et al. 4846* (SEL). **Veraguas**: Cerro Tute northwest of Santa Fe, alt. 950 m, 24 Oct. 1975, *R.L. Dressler 5201* (MO).

The first binomial attributed to the large number of species intermediate between *B. cucullata* and *B. prorepens* is *B. dolichorhiza* from Colombia, one year earlier than a description in *Masdevallia* by Kränzlin. Totally oblivious to the genus *Barbosella*, Kränzlin described this species as *M. anaristella* in 1921 from a nineteenth century collection by Endres in Costa Rica. He compared the tailless synsepal to that of *Masdevallia triaristella* Rchb.f. Two years later, Schlechter recognized another Costa Rican collection by the brothers Brade as *B. bradeorum* in the correct genus.

Masdevallia dolichorhiza belongs in a widely distributed complex that is a mixture of all the intermediate populations between the large *B. cucullata* and the small *B. prorepens*. Large specimens of *M. dolichorhiza* approach *B. cucullata* and smaller ones grade into *B. prorepens*, making identification often a matter of personal judgment. The majority of the specimens cited above are intermediates, probably composed of *B. dolichorhiza*, small specimens of *B. cucullata*, and large specimens of *B. prorepens*. Typically, *B. dolichorhiza* is shortly repent to caespitose, often forming dense masses with peduncles two to three times as long as the narrow leaves. Except for the differences in size, the flowers of all three concepts are similar. The sepals of *B. dolichorhiza* are between 15 and 25 millimeters long; those of *B. prorepens* are usually between 6 and 13 millimeters long; and those of *B. cucullata* exceed 25 millimeters, sometimes exceeding four centimeters in length. In all three concepts the colors vary from yellow through brown to purple.

In common with the above species, the lip is ligulate, the concave base articulated with the tip of the column-foot. The central depression above the cavity varies in size and depth, and the apical portion above the depression exhibits more or less thickening in varying degrees along the three nerves. Variations of the lip have been used to try to differentiate the above three taxa, but this is impractical. The specimens identified as *B. anaristella* and *B. prorepens* in the Orchids of Nicaragua (Hamer, 1982) are both *B. prorepens*.

Barbosella dusenii (A.Samp.) Schltr., Repert. Spec. Nov. Regni Veg. 15: 261, 1918.

Bas.: *Restrepia dusenii* A.Samp., Arq. Mus. Nac. Rio de Janeiro 15: 5, 1909.
Ety.: Named in honor of Per Karl Hjalmar Dusén, Swedish botanist, who discovered this species.

Plant small, epiphytic, long-repent, scandent, the rhizome slender, elongated, occasionally branching, 1-7 mm long between ramicauls, enclosed by 2 tubular sheaths; roots slender. Ramicauls slender, ascending, 1-1.5 mm long, enclosed by a thin, tubular sheath. **Leaf** suberect, thickly coriaceous, elliptical, subacute to obtuse, apiculate, 4-8 mm long, 3.5-5 mm wide, cuneate below into the subpetiolate base. **Inflorescence** a solitary, pale yellow flower, borne by a slender, erect peduncle, 22-40 mm long, with a basal bract, from the base of the leaf; floral bract 1.5 mm long, enclosing the pedicel and part of the ovary; pedicel stout, 0.6-0.75 mm long, with a filament 1 mm long; ovary 0.6-0.75 mm long; **sepals** membranous, the dorsal sepal free, erect, narrowly linear, acute, 8-8.5 mm long, 1-1.25 mm wide, faintly 3-veined, the lateral sepals narrowly ovate, acute, 8 mm long, 1.5 mm wide, connate 3-5 mm, concave at the base, 8 mm long, 3 mm wide, faintly 6-veined together; **petals** membranous, thickened toward the apex, narrowly ovate, acute, 6 mm long, 1 mm wide, the margins cellular-denticulate; **lip** elliptical-oblong, slightly concave, dilated near the middle, 2.6-3 mm long, 1-1.2 mm wide, the apex obtuse, the base truncate, with a cavity, finely pubescent anteriorly, articulated with the bulbous apex of the column-foot, the disc with a low pair of longitudinal calli on the middle two-thirds; **column** stout, broadly winged above the lower third, 2 mm long, the apex cucullate, toothed, the foot thick with the apex of the ovary, the apex free, bulbous.

BRAZIL: **Paraná**: Villa Velha, alt. 900 m, 27 Apr. 1909, *P. Dusén 8070* (Holotype: S; Isotypes: AMES, HBG, K, NY, MO), C. Luer illustr. 14792; same locality, 27 Apr. 1914, *P. Dusén 14767* (AMES, K, NY, MO, S); Banhardo, 7 Apr. 1911, *P. Dusén s.n.* (AMES); Bitucuna, Rio Iguazu, Salto Grande, *G. Hatschbach 21449* (C); Jaquariahyua, 5 Mar. 1916, *P. Dusén 17962* (AMES, NY, S). **São Paulo**: Itararé, Bairro das Almas, collected by E.L.M. Catharino, Aug. 1982, cultivated at the São Paulo Botanical Garden, #13069, 23 May 1986, *C. Luer 11620* (MO).

This minute, creeping species is closely related to *B. cogniauxiana*, and is little more than an extremely small vegetative variation. *Barbosella dusenii* is distinguished by the twice smaller vegetative parts, the tiny leaves being broadly elliptical. The flowers, however, are only slightly smaller than the usual size of those of *B. cogniauxiana*, and differ only in minor details of the lip. Both have shallow articulations with a bulbous tip of the column-foot, but the pair of calli on the center of the disc are more prominent in *B. dusenii*.

Barbosella fuscata Garay, Orquideología 4: 153, 1969.

Ety.: From the Latin *fuscatus*, "darkened," referring to the dark color of the flower.

Plant medium in size to large, epiphytic, densely caespitose; roots slender. Ramicauls slender, erect, 5-10 mm long, enclosed by 2-3 thin, loose, tubular sheaths. **Leaf** erect, thickly coriaceous, narrowly linear, semiterete, acute, 3-8 cm (occasionally to 13 cm) long, 0.2-0.3 cm wide, 0.2-0.3 cm thick, the base epetiolate. **Inflorescence** a solitary flower, produced singly; peduncle slender, erect, 10-14 cm long; floral bract thin, tubular, 3-4 mm long, enclosing the pedicel; pedicel stout, 1-2 mm long, with a filament 1-2 mm long; ovary smooth, 3-4 mm long; **sepals** membranous, yellow-brown to dark purple, the dorsal sepal free, erect, narrowly linear-triangular, acute, 25-45 mm long, 1.5 mm wide, 3-veined, thickened above the middle, the lateral sepals connate to the apex into a narrowly triangular-ovate, acute lamina, concave at the base, 25-45 mm long, 6-7 mm wide, 6-veined together; **petals** membranous, thickened and narrowly terete above the middle, colored as the sepals, cellular-ciliate, narrowly linear-ovate, acute, 9-11 mm long; **lip** orange-brown to purple, more or less oblong with thin erect margins below the middle, 3.5-4.5 mm long, 1.5 mm wide, the apex obtuse to rounded, the disc with a pair of low calli above the middle, with an elliptical concavity near the middle above the lamellae that form the basal cavity, articulated with the bulbous apex of the column-foot; **column** yellow, with red-brown, stout, longitudinally winged for two-thirds the length, 3-4 mm long, the apex cucullate, the foot thick with the apex of the ovary, the apex free, bulbous.

COLOMBIA: **Antioquia**: without collection data, cultivated by Luz Helena de Mejía in Medellín, *G. Escobar 417* (Holotype: AMES); without collection data, cultivated at Colomborquídeas, 16 May 1993, *C. Luer 16931* (MO); Munic. El Retiro, Hda. Normandia, alt. 2500 m, 2 Dec. 1956, *M. Ospina H. 62* (COL). **Cauca**: Quebrada del Río San Marcos between Jardín and San Rafael, alt. 2700-2900 m, 25 July 1943, *J. Cuatrecasas 14742* (AMES).

ECUADOR: **Morona-Santiago**: Cordillera de Cutucú, alt. 1000 m, 5 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12658* (MO, QCNE). **Loja**: Nudo de Sabanilla, road to Yangana, alt. 2600 m, 6 Feb. 1985, *G. Harling & L. Andersson 21692* (GB). **Zamora-Chinchipe**: cloud forest above Valladolid, alt. 2450 m, 23 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10920* (MO, QCNE); east of pass between Loja and Zamora, alt. 2500-3000 m, 25 May 1990, *J.E. Madsen 87070* (AAU, QCNE).
PERU: **Junín**: Chanchamayo, imported from R. Stümpfle, cultivated 21 Apr. 1978, *C. Luer 2900* (SEL).

This concept consists of those plants very closely allied to the common *B. cucullata*, but with a densely caespitose habit and narrow, linear-terete leaves less than three millimeters wide. The length of the leaves varies greatly. The orange to dark purple flowers with sepals between three and four centimeters long are inseparable from those of *B. cucullata*. Although this concept seems nothing more than a vegetative form of *B. cucullata*, typical forms appear very distinct. Both taxa occur sympatrically through much of the Andes. Unfortunately, intermediate forms are found.

Barbosella gardneri (Lindl.) Schltr., Repert. Spec. Nov. Regni Veg. 15: 261, 1918.

Bas.: *Pleurothallis gardneri* Lindl., Edwards' Bot. Reg. 28: Misc. 83, 1842.
Ety.: Named in honor of Professor Gardner who sent this species to Lindley.

Syn.: *Restrepia microphylla* Barb.Rodr., Rev. de Engenh. 3: 110, 1881; Gen. Sp. Orch. Nov. 2: 115, 1882.
Ety.: From the Greek *microphyllos*, "with small leaves," referring to the habit.

Syn.: *Restrepia gardneri* (Lindl.) Benth., Gen. Pl. 3: 491, 1883.

Syn.: *Humboldtia gardneri* (Lindl.) Kuntze, Rev. Gen. Pl. 667, 1891.

Syn.: *Barbosella microphylla* (Barb.Rodr.) Schltr., Repert. Spec. Nov. Regni Veg. 15: 262, 1918.

Syn.: *Barbosella gardneri* var. *dusenii* (A.Samp.) Hoehne, Arq. Bot. Estado São Paulo 4: 75, 1947.

Syn.: *Barbosella gardneri* var. *genuina* Hoehne, Arq. Bot. Estado São Paulo 4: 75, 1947.

Plant very small, epiphytic, long-repent, up to 10 cm in length, the rhizome slender, elongated, occasionally branching, 1-7 mm long between ramicauls, with a tubular sheath near the middle; roots slender, produced singly at the base of the ramicauls. Ramicauls ascending, 0.5-1 mm long, enclosed by 1-2 thin, tubular sheaths. **Leaf** suberect, thickly coriaceous, elliptical, acute, 4-8 mm long, 2-3 mm wide, cuneate below into the subpetiolate base. **Inflorescence** a solitary flower, produced singly; peduncle slender, erect, 25-35 mm long; floral bract thin, oblique, 1-1.5 mm long, enclosing the pedicel; pedicel 0.5 mm long, with a filament 1 mm long; ovary smooth, 0.75-1 mm long; **sepals** membranous, pale yellow-green to yellowish white, the dorsal sepal free, erect, narrowly ovate, narrowly obtuse, 6 mm long, 1.5 mm wide, 1(3)-veined, the lateral sepals narrowly ovate, oblique, 6 mm long, 1.75 mm wide, 3-veined, connate 1.5-2.5 mm; **petals** membranous, colored as the sepals, narrowly ovate, acute, 6 mm long, 1.25 mm wide, long-attenuate and thickened above the middle, the margins cellular-glandular; **lip** yellow, suffused with purple, subpandurate-trilobed, 2.4 mm long, 1 mm wide, the apical lobe ovate, obtuse, abruptly acuminate-acute, the lateral lobes below the middle, erect, broadly rounded, the disc with a shallow cavity, the base rounded, concave, articulated with the bulbous apex of the column-foot; **column** slender, 1.5 mm long, the apex not hooded, the foot thick with the apex of the ovary, the apex bulbous.

BRAZIL: **Rio de Janeiro**: epiphytic in forests of the Organ Mountains, collected by Miers, Mar. 1841, *Mr. Gardner 5865* (Holotype: K; Isotypes BM, BR); without locality, *Burchell 2283* (AMES, W); Alto Marahé, Jan. 1874, *A. Glaziou 6917* (BR, C, S); without locality, 1888, *A. Glaziou 17256* (BR, C, G, K); without locality, *A. Glaziou 18532* (C); without locality, *A. Glaziou 20499* (C, K); Theresópolis, Organ Mts., 23-24 Feb. 1887, *H. Schenck 2706, 2717* (BR); Theresópolis, 17 June 1887, *J.T. de Moura 6* (BR); Theresópolis, Jan. 1888, *J.T. de Moura 76* (AMES, BR); Serra dos Orgâos, *J. Miers s.n.* (K); same area, 30 Dec. 1896, *E. Ule s.n.* (HBG); same area, alt. 1500 m, *G. Pabst 440* (AMES); above Petrópolis, alt. 1500 m, flowered in cultivation by Verboonen, 21 Oct. 1988, *C. Luer 13758* (MO); epiphytic in forest between Theresópolis and Salvador, alt. 950 m, 2 Dec. 1989, *C. Luer & J. Luer 14546* (MO). **São Paulo**: Salesópolis, Estação Biológica de Boraceia, 26 Sept. 1966, *O. Handro 1153* (HB, NY); Comm. Geogr. & Geol. 2211 rec. *Löfgren s.n.* (BR); Apiái, Iporanga, alt. 550 m, 21 Apr. 1965, *Grupo de Piracicaba 10840* (M). **Santa Catarina**: Sabia Presidente Neren, alt. 750 m, 7 Apr. 1958, *Reitz & Klein 6655* (NY). **Paraná**: Serra do Mar, Ypirange, 3 Nov. 1909, *P. Dusén 8618* (HBG); Carvalho, forest, 18 Nov. 1909, *P. Dusén 9535* (K, S); Serra da Mar, Carvalho, alt. 1000 m, 12 Feb. 1910, *P. Dusén 9850* (HBG, S). Without collection data: "Should come from Mexico," flowered in cultivation in the Hamburg Bot. Gard., 7 July 1921 (HBG); flowered in cultivation in the Hamburg Bot. Gard., 12 July 1921, *C. Purpus 1912* (HBG).

This miniature species and *Barbrodria miersii* were first collected by John Miers in the Organ Mountains of southern Brazil where it is still found commonly today. Professor Gardner dispatched specimens of both species to Lindley at Kew.

Although minute-leaved, this tiny species forms dense, thick mats of entwining rhizomes. The creeping rhizome produces at intervals of a few millimeters a tiny, suberect leaf. Numerous small flowers are produced frequently, sometimes in profusion, on threadlike peduncles.

The flowers are characterized by the panduriform lip, dilated by broadly rounded lateral lobes below the middle, and a broadly dilated middle lobe from above the middle. The obtuse apex is abruptly acuminate into a pointed tip. The minute base is articulated with the tip of the column-foot.

Two specimens made from cultivated material at the Hamburg Botanical Garden on 7 and 12 July 1921 are annotated *Pleurothallis capillipes* Kränzl. *n. sp.* They are erroneously attributed to a Mexican collection by Purpus in 1912.

Barbosella geminata Luer, Phytologia 46: 345, 1980.

Ety.: From the Latin *geminatus*, "doubled, paired," referring to the paired leaves.

Plant medium in size, epiphytic, long-repent, scandent, up to 1 meter in length, the rhizome stout, elongated, occasionally branching, 3-6 cm long between ramicauls, with a tubular sheath near the middle; roots slender, produced singly at the apex (or base) of a segment of rhizome. Ramicauls ascending, produced in pairs, 3-8 mm long, enclosed by 1-2 thin, tubular sheaths. **Leaf** suberect, thickly coriaceous, linear-obovate, acute, 2.5-5 cm long, 0.3-0.5 cm wide, gradually narrowed below into the subpetiolate base. **Inflorescence** a solitary flower, produced singly; peduncle slender, erect, 4-5 cm long; floral bract thin, oblique, tubular, 4 mm long, enclosing the pedicel; pedicel stout, 1 mm long, with a filament 3-4 mm long; ovary smooth, 2 mm long; **sepals** membranous, light yellow, the dorsal sepal free, erect, narrowly linear-ovate, acute, 12 mm long, 1.5 mm wide, 3-veined, the lateral sepals connate to the apex into a narrowly ovate, acute lamina, concave at the base, 11 mm long, 5 mm wide expanded, 6-veined together; **petals** membranous, yellow, narrowly ovate, acute, 8 mm long, 1.25 mm wide, long-attenuate above the middle, the margins microscopically serrulate below the middle; **lip** yellow, thick, fleshy, ligulate-oblong, 3 mm long, 1.2 mm wide, the apex obtuse, the base rounded, deeply concave, articulated with the bulbous apex of the column-foot, the disc with a pair of infolded carinae forming the basal cavity, shallowly concave between; **column** stout, longitudinally winged above the middle, 2 mm long, the apex cucullate, the foot thick with the apex of the ovary, the apex bulbous.

COSTA RICA: **San José**: epiphytic in cloud forest above División, alt. 2850 m, Dec. 1979, *K.S. Walter 79-888* (Holotype: SEL), C. Luer illustr. 4830; San Cristóbal, alt. 8,000 ft., 27 May 1928, *H.E. Stork 2302* (AMES); La Chonta de Dota, alt. 2400 m, 5 Feb. 1979, *C. Todzia 559* (CR); epiphytic in cloud forest above Empalme, Cerro de La Muerte, alt. 2600 m, 23 Mar. 1986, *C. Luer, J. Luer, T. Linder & W. Rhodehamel 12146* (MO). **Cartago**: Cordillera de Talamanca, alt. 1900 m, 17 Apr. 1949, *L.O. Williams 16369* (AMES); La Estrella de Cartago, *C.H. Lankester 400* (AMES). **Heredia**: Gallito de Heredia, 23 Dec. 1933, *A.M. Brenes 3* (NY); Vara Blanca, Dec. 1931, *A. Skutch s.n.* (NY); Cerros de Zurquí, northeast of San Isidro, 3 Mar. 1926, *P.C. Standley & J. Valerio 50854* (AMES); Vara Blanca, 3 July 1931, *A. Skutch s.n.* (CR, NY); beyond Cerro Redondo, alt. 6,400 ft., 22 May 1972, *J. L. Luteyn 2998* (CR, DUKE); San Rafael, Reserva Biologica "El Chompipe," alt. 2000 m, 16 Dec. 1990, *S. Ingram & K. Farrell 796* (AMES, CR, F, K, SEL).

This exceedingly long-repent, viney, vegetatively distinct species had been collected on several occasions in different localities in Costa Rica long before its description in 1980. Although so distinctly different, these collections were identified as *B. monstrabilis*, a smaller, far less long-repent form conspecific with *B. prorepens*. The rhizomes of *B. geminata* produce a pair of leaves at intervals of three to six centimeters along a branching rhizome that may reach a meter in length when untangled.

The small flowers are very similar to those of the common and widely distributed *B. prorepens*, but the dorsal sepal and petals of *B. geminata* are not as fleshy and terete above the middle.

Barbosella macaheënsis (Cogn.) Luer, comb. nov.

Bas.: *Pleurothallis macaheënsis* Cogn., Bull. Soc. Bot. Belg. 63: 310, 1907.

Plant small, epiphytic, repent, up to ca. 5 cm long, the rhizome slender, 2-4 mm long between ramicauls; roots slender, produced singly at the base of the ramicauls. Ramicauls ascending to erect, 2-6 mm long, enclosed by 1-2 thin, tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical-obovate, subacute, 15-25 mm long, 3-4 mm wide, cuneate below into a petiole 3-5 mm long. **Inflorescence** a solitary flower, produced singly; peduncle slender, erect, 25-35 mm long; floral bract thin, inflated-infundibular, 1.5 mm long, enclosing the pedicel and ovary; pedicel 0.25 mm long; ovary 1 mm long; **sepals** membranous, appear to have been light yellow or white, the dorsal sepal free, narrowly linear, acute, 6.5 mm long, 1 mm wide, 3-veined, the lateral sepals connate 3 mm into an ovate-triangular, bifid synsepal, 7 mm long, 4 mm wide, 6-veined, with the apices acute; **petals** membranous, narrowly ovate, subfalcate, acute, 4 mm long, 1 mm wide; **lip** oblong-panduriform, 3 mm long, 1.2 mm wide, ovate, acute and concave above the basal cavity, the basal cavity proportionately large, deeply concave, articulated with the bulbous apex of the column-foot; **column** slender, 3 mm long, the apex hooded, the foot 1 mm long with the free apex bulbous.

BRAZIL: **Rio de Janeiro**: Alto Macahé, 6 July 1891, *A. Glaziou s.n.* (Holotype: BR), C. Luer illustr. 19123; without locality, *A. Glaziou 18535a* (BR), C. Luer illustr. 19125.

Cogniaux described this species in the genus *Pleurothallis*, failing to note the details of the lip correctly. It is apparently rare, not known to have been collected since two collections by Glaziou a century ago. The small species is distinguished by the creeping habit, and pedicels that bear the flowers above narrowly obovate leaves. The flowers appear to have been non-resupinate by a bending backward of the peduncle. The sepals are membranous with the dorsal sepal narrowly linear and the synsepal much broader and bifid. The petals are short and subfalcate. The basal cavity of the base of the lip is proportionately large, and the apical two-thirds of the lip is ovate, concave and acute. The features of the lip are somewhat distorted, and their description may need to be modified, if another specimen is ever discovered.

Barbosella orbicularis Luer, Selbyana 3: 10, 1976.

Ety.: From the Latin *orbicularis*, "orbicular," referring to the shape of the leaves.

Plant very small, epiphytic, repent, the rhizome comparatively stout, occasionally branching, 1-5 mm long between ramicauls, with a tubular sheath near the middle; roots comparatively stout, produced from nodes of the rhizome. Ramicauls ascending to horizontal, about 1 mm long, enclosed by a thin, loose, tubular sheath. **Leaf** prostrate, more or less overlapping, thickly coriaceous, often suffused with purple, suborbicular, 3 mm long and wide to 8 mm long and wide, the apex obtuse to rounded, the rounded base contracted into a petiole less than 1 mm long. **Inflorescence** a solitary flower, produced singly; peduncle slender, erect, 4-5 mm long; floral bract thin, oblique, tubular, 1.5 mm long, enclosing the pedicel; pedicel stout, 0.5 mm long, with a filament 1 mm long; ovary smooth, 1 mm long; **sepals** light yellow-green, suffused with rose toward the base, the dorsal sepal free, erect, narrowly ovate, narrowly obtuse, 5-7 mm long, 1.5 mm wide, 3-veined, convex, thickened and microscopically short-pubescent above the middle, the lateral sepals connate to the middle or to near apex into an ovate, obtuse, bifid lamina, concave at the base, 5-6 mm long, 4.5-5 mm wide expanded, 6-veined together; **petals** yellow, linear-ovate, acute, 4.5-5.5 mm long, 0.5-0.75 mm wide, thickened, semiterete and cellular-glandular above the middle, the margins microscopically erose; **lip** purple or dull yellow, suffused with rose centrally, oblong-trilobed, 3.5 mm long, 2 mm wide expanded, the middle lobe oblong, obtuse, the lateral lobes near the middle, erect, ovate, obtuse, the base rounded, deeply concave, articulated with the bulbous apex of the column-foot, the disc featureless; **column** stout, longitudinally winged above the middle, 2 mm long, the apex cucullate, the foot thick with the apex of the ovary, the apex free, bulbous.

PANAMA: **Panamá**: epiphytic near La Eneida, Cerro Jefe, alt. 1000 m, 25 Dec. 1967, *R. L. Dressler 3285* (Holotype: SEL); epiphytic in forest along the Llano-Cartí road, alt. 350 m, 3 Mar. 1976, *C. Luer, J. Luer, P. Taylor & R.L. Dressler 1059* (SEL).
VENEZUELA: **Bolívar**: without locality, Sept. 1974, *G.C.K. Dunsterville 1330*; Cerro Sarisariñama, alt. 1300 m, flowered in cultivation July 1980, *G.C.K. Dunsterville s.n.* (VEN); Heres, Cerro Marutani, alt. 1200 m, 11 Jan. 1981, *J. Steyermark, B. Maguire, C. Brewer Carías & V. Careño V. 123973* (MO, VEN).
ECUADOR: **Morona-Santiago**: epiphytic in tall forest north of Macas, alt. 1050 m, 15 Jan. 1989, *C. Luer, J. Luer, P. Jesup, A. Jesup, A. Hirtz & S. Ortega 13911A* (MO).

This tiny species is widely but locally distributed in eastern Panama, eastern Ecuador, and on the tepuis of southeastern Venezuela. It is related to the Brazilian *B. crassifolia*, which is distinguished by a much longer peduncle and smaller flowers with comparatively larger lateral lobes of the lip.

Resembling some species of *Peperomia*, the small, overlapping, smooth, prostrate, rounded leaves of *B. orbicularis* form broad mats that cover the bark of trunks of large trees in wet forests. Although small, the shortly pedunculate flower is as large as or larger than some of the leaves.

Barbosella prorepens (Rchb.f.) Schltr., Repert. Spec. Nov. Regni Veg. 15: 263, 1918.

Bas.: *Restrepia prorepens* Rchb.f., Gard. Chron. 1: 810, 1877.
Ety.: From the Latin *prorepens*, "repent," referring to the habit.

Syn.: *Pleurothallis dussii* Cogn., Symb. Antill. 6: 413, 1909.
Ety.: Named in honor of the Rev. Pére Antoine Duss, who discovered this species.

Syn.: *Barbosella brenesii* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 201, 1923.
Ety.: Named in honor of A.M. Brenes who collected the specimen described.

Syn.: *Pleurothallis monstrabilis* Ames, Sched. Orchid. 6: 63, 1923.
Ety.: From the Latin *monstrabilis*, "worthy to be shown," Ames' opinion of the plant.

Syn.: *Restrepia caespitifica* Lehm. & Kraenzl., Repert. Spec. Nov. Regni Veg. 24: 358, 1928.
Ety.: From the Latin *caespitificus*, "tuftlike," referring to the habit.

Syn.: *Restrepia tolimensis* Kraenzl., Repert. Spec. Nov. Regni Veg. 24: 358, 1928, nomen nudum.
Ety.: The proposed name refers to Tolima, Colombia.

Syn.: *Pleurothallis prorepens* (Rchb.f.) Ames, Hubbard & Schweinf., Bot. Mus. Leafl. 3: 39, 1934.

Syn.: *Barbosella caespitifica* (Lehm. & Kraenzl.) Garay, Orquideología 9: 114, 1974.

Syn.: *Barbosella monstrabilis* (Ames) Garay, Orquideología 9: 114, 1974.

Syn.: *Barbosella tolimensis* (Kraenzl.) Garay, Orquideología 9: 114, 1974, nomen. illeg.

Syn.: *Barbosella dussii* (Cogn.) Dod, Moscosoa 4: 192, 1986.

Plant small, epiphytic, shortly repent to caespitose; roots slender. Ramicauls ascending to erect, produced singly or in pairs, 2-5 mm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, fleshy, thickly coriaceous, sometimes semiterete to triquetrous, narrowly obovate, subacute, 1.5-5 cm long, 2-4 mm wide, gradually narrowed below into the subpetiolate base. **Inflorescence** a solitary flower, produced singly; peduncle slender, erect, 2-5 cm long; floral bract thin, tubular, 2.5-3 mm long, enclosing the pedicel; pedicel stout, 0.5-1 mm long, with a filament 1-2 mm long; ovary smooth, 1-1.5 mm long; **sepals** membranous, light yellow, to light yellow-green, sometimes suffused with purple, the dorsal sepal free, erect, narrowly linear or linear-ovate, acute, 9-15 mm long, 1-1.5 mm wide, 3-veined, thickened above the middle, semiterete, the lateral sepals connate to the apex into a narrowly ovate, acute lamina, concave at the base, 9-15 mm long, 3.5-6 mm wide, 6-veined together; **petals** membranous, colored as the sepals, narrowly linear-ovate, acute, the margins cellular erose or microscopically denticulate, 5-7 mm long, thickened and terete above the middle; **lip** yellow, usually suffused with dark purple across the middle, thick, fleshy, more or less oblong with thin erect margins below the middle, 2-3 mm long, 0.75-1.5 mm wide, the apex obtuse to rounded, the disc with a pair of low, obscure, converging calli from either side to above the middle, sometimes with a similar callus between, with a shallow, ovate depression between them and below the middle communicating with the rounded cavity at the base, articulated with the bulbous apex of the column-foot; **column** yellowish, often suffused with purple, stout, longitudinally winged above the middle, 2-2.5 mm long, the apex cucullate, the foot thick with the apex of the ovary, the apex free, bulbous.

COSTA RICA: without locality, ca. 1867, *Endres 2618* (Holotype: W); without locality, *Endres 71, 271* (W). **Alajuela**: San Pedro de San Ramón, alt. 1075 m, Nov. 1921, *A.M. Brenes 165* (holotype of *B. brenesii* presumably destroyed at B, lectotype: CR; isolectotypes: AMES, NY); same area, alt. 1075 m, 17 Sept. 1921, *A.M. Brenes 123* (AMES, CR, NY); La Palma de San Ramón, alt. 1175 m, 31 Oct. 1923, *A.M. Brenes 618* (CR, NY); same area, 4 Nov. 1923, *A.M. Brenes 650* (CR, AMES). **Cartago**: Santa Clara de Cartago, 23 Dec. 1923, *C.H. Lankester 564* (AMES). **Guanacaste**: Monteverde, road to San Gerardo above Rio Negro, alt. 1550 m, 11 Jan. 1989, *W. Haber 9052* (CR, MO); Abangares, Río Negro, alt. 1300 m, 2 Feb. 1989, *W. Haber & W. Zuchowski 9092* (CR, MO). **Heredia**: Vara Blanca, alt. 2000

m, 23 Dec. 1931, *W. Kupper 223* (M); Vara Blanca between Poás and Barba, alt. 1740 m, Oct. 1937, *A.F. Skutch 3385* (AMES, K, MO, S); Cerro Chompipe toward Las Vueltas, alt. 1900-2000 m, 4 Sept. 1979, *K. Walter 79368* (CR); La Ventolera southern slope of Vol. Poás, alt. 1700 m, *P.C. Standley 34743* (AMES); below Volcán Poás, 17 July 1972, collected by Cordelia Head, cult. at J & L Orchids, Easton, CT, 24 Oct. 1978, *C. Luer 3465* (SEL). **Puntarenas**: Monteverde, alt. 1400-1700 m, 18 Oct. 1978, *C. Todzia 501* (CR). **San José**: vicinity of La Palma, 1500-1700 m, 17 July 1923, *W.R. Maxon & A.D. Harvey 8096* (holotype of *P. monstrabilis*: AMES, isotype: US); La Palma, alt. 1600 m, 3 Feb. 1924, *P.C. Standley 33158* (AMES); La Hondura, alt. 1300-1700 m, 16 Mar. 1924, *P.C. Standley 37720* (AMES); El Muñeco, alt. 4,500 ft., 19 June 1928, *H. Stork 2653* (AMES); Carpintera, Apr. 1924, *C.H. Lankester 798, 930* (AMES); between Aserrí and Tarbaca, alt. 1600-1900 m, 12 Feb. 1924, *P.C. Standley 34124* (AMES); Cerro de las Caricias north of San Isidro, alt. 2000-2400 m, 11 Mar. 1926, *P.C. Standley & J. Valero 52372, 52447* (AMES).
NICARAGUA: **Grenada**: Volcán Mombacho, alt. 1230 m, *A. Heller 8982* (F). **Jinotega**: Macizos de Peñas Blancas, alt. 1290 m, Oct. 1964, *A. Heller 9701* (F).
GUATEMALA: **Alta Verapaz**: near Cobán, cult. by Otto Mittelstaedt in Cobán, 29 Nov. 1990, *C. Luer 14869* (MO).
PANAMA: **Chiriquí**: Cerro Colorado, alt. 1400-1450 m, 20 Sept. 1977, *R.L. Dressler 5727* (MO); south of the Fortuna dam site, near "vivero," 10 May 1982, *R.L. Dressler 6047* (MO).
GUADELOUPE: Grande Decouverte d'chemin des Bains a la Savane a Mulet, alt. 1000-1200 m, 1893, *P.A. Duss 3339* (holotype of *P. dussii*: BR; isotypes: AMES, BR, NY, P).
DOMINICAN REPUBLIC: Bonao, Casabino, Alto Casabito above Bonao, alt. 1000 m, Feb. 1968, *D. Dod 126* (NY); same area, alt. 1200 m, 13 Apr. 1969, *A. Liogier 14772* (NY); *D. Dod 126* (NY); Loma de Cabrera, Río Limpio, *D. Dod 1266* (JBSD); Monción, Laguna de Cenobi, *Ekman 12775* (AMES, S); Jarabacoa, Pico del Yaque, alt. 1800 m, 4 July 1912, *M. Fuertes 1719* (NY, W); Barahona, Sierra de Bahoruco, Caña Brava, alt. 1300 m, 15 Jan. 1968, *A. Liogier 11671* (NY); de la Vega, Montes Picos de Yague, alt. 1800 m, 4 July 1912, *M. Fuertes 1719* (AMES, W).
VENEZUELA: **Carabobo**: Canoabo Road, Nov. 1954, *G.C.K. Dunsterville 235*. **Táchira**: Páramo de Tamá, alt. 2475-2580 m, 18 May 1967, *J.A. Steyermark & G.C.K. Dunsterville 98346* (AMES). **Yaracuy**: Cumbre Gamelatal, alt. 1000-1200 m, 19 June 1986, *J.A. Steyermark, S. Mori & N. Holmgren 14590* (NY, VEN).
COLOMBIA: **Cauca**: Río Honda near Popayán, alt. 1650 m, 5 Mar. 1884, *F.C. Lehmann 3610* (BR, G); above Popayán, alt. 1700-2000 m, *F.C. Lehmann 8367* (K). **Cundinamarca**: above Guttierez, alt. 2700 m, 19 May 1984, *C. Luer, J. Luer & R. Escobar 10381* (MO). **Nariño**: above Ricaurte, alt. 1600 m, 2 Nov. 1979, *C. Luer, J. Luer, A. Hirtz & K. Walter 4842* (SEL). **Risaralda**: Serriania de Belalcazar, alt. 1500-1600 m, *F.C. Lehmann 3305* (K, W, type of *R. caespitifica*). **Tolima**: Alto de Oteras, alt. 2600-3000 m, 11 Dec. 1887, *F.C. Lehmann 2379* (BR).
ECUADOR: **Pichincha**: San Juan, Atacaso, alt. 3000 m, May 1985, *A. Hirtz 2663* (MO). **Napo**: Parqué Nacional Yasuní, alt. 200 m, 26 May 1988, *C.E. Cerón & F. Hurtado 4171* (MO, QCNE). **El Oro**: above Piñas, alt. 1000 m, cultivated 26 Apr. 1980, *C.H. Dodson 9311* (SEL), C. Luer illustr. 5235. **Zamora-Chinchipe**: wet forest between Loja and Zamora, alt. 2000-2400 m, 4 Mar. 1990, *S. Dalström & L. Årnby 1440* (MO); north of Gualaquiza, alt. 1800 m, 8 Mar. 1990, *S. Dalström & L. Årnby 1446* (MO).
PERU: **Amazonas**: collected by W. Königer K-123, flowered in cultivation in München, 3 Oct. 1988, *C. Luer 13753* (MO).
BOLIVIA: **Cochabamba**: Chapare, epiphytic in forest between Cochabamba and Villa Tunari, alt. 1900 m, 15 Jan. 1988, *C. Luer, J. Luer, R. Vásquez et al. 12835* (Holotype: MO); same area, Nov. 1978, *C. Luer, J. Luer, R. Vásquez, F. Fuchs et al. 4843* (SEL). **Santa Cruz**: Espejo, collected by Dr. L. Moreno, obtained by F. Fuchs, flowered in cultivation 19 Nov. 1977, *C. Luer 2229* (SEL).

Barbosella prorepens is a small-flowered species that was first described in *Restrepia* by Reichenbach from a Costa Rican collection by Endres. The accurate, detailed illustrations sent to him by Endres are superb. At that time Endres suggested that this collection probably represented a new genus, which was finally recognized by Schlechter about 40 years later. A purple color-form with the proposed name "Restrepia vialascea," violacea?, was also sent to Reichenbach. Schlechter described a small, caespitose, purple-flowered variation collected by Brenes as *B. brenesii*.

The species-complex treated here as *B. prorepens* is frequent and variable in the mountains of Central America and through the Andes of Colombia, Venezuela, and Ecuador. Vegetatively, it is caespitose, or shortly repent, probably much depending upon the habitat. Both forms of habit often occur on the same specimen. Both

variations are illustrated by Reichenbach for the type of the species in *Xenia Orchidaceae*. The leaves are produced singly or in pairs, suggesting a gradation into *B. geminata*. The flowers vary only in trivialities. Reichenbach's crude figure of the lip with basal lobules is misleading.

Larger Central American plants with similar but larger flowers borne by longer peduncles had been recognized as *B. anaristella*, now treated as *B. dolichorhiza*. Unfortunately, intermediate forms exist. Some individuals of the latter overlap in size with those of the large Andean *B. cucullata*.

Apparently unaware of *B. prorepens*, Ames described *Pleurothallis monstrabilis*, comparing it to his *Pleurothallis repens* which is a *Platystele*. *Barbosella brenesii* appears to be a caespitose, purple-flowered form of *B. prorepens* in Costa Rica. The habit of the extremely long-repent, double-leaved *B. geminata* is distinctive in spite of the flowers being indistinguishable.

Barbosella caespitifica was described from an Andean collection by Lehmann. Plants are relatively common, and numerous forms are to be found. Each population differs from another, as well as from the Central American forms of *B. prorepens*, so that it is difficult to decide that a real specific difference exists. Superficially, all the flowers appear the same; only the tiny, converging calli of the lip vary slightly from population to population. The three low calli on the apical third of the lip often seen in specimens from Central America are less distinct in the Andes.

Typically, *B. prorepens* is small with leaves less than five centimeters long, and peduncles shorter than or up to twice as long as the leaves. The color of the flowers is usually pale yellow, but purple forms occur. The sepals are less than two centimeters long. All the lips are basically similar. *Barbosella prorepens* is little more than a small, vegetative form of the sympatric, robust *B. cucullata*. Although the problem is compounded by intermediate forms, I believe that the extreme forms are worthy of recognition, with the intermediates recognized as *B. dolichorhiza*,

Barbosella ricii Luer & Vásquez, sp. nov.

Ety.: Named in honor of Darwin Ric of Montero, Bolivia, who discovered this species.

Species haec *Barbosellae prorepentis* (Rchb.f.) Schltr. affinis, sed habitu densissime ascendenti caespitoso, foliis angustissime fusiformibus-ovoideis, floribus majoribus et labello oblongo obscure bicalloso differt.

Plant small, epiphytic, densely caespitose, very shortly ascending-repent; roots slender. Ramicauls ascending to erect, 1-1.5 mm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, fleshy, thickly coriaceous, narrowly fusiform-ovoid, terete to semiterete, linear, narrowly subacute, sessile, 2-5 cm long, 2-3 mm wide, more or less abruptly narrowed below at the sessile base. **Inflorescence** a solitary flower, produced singly; peduncle slender, erect, 5-8 cm long; floral bract thin, tubular, 2-3 mm long, enclosing the pedicel; pedicel stout, 0.5-1 mm long, with a filament 2 mm long; ovary smooth, 2 mm long; **sepals** light yellow-green, the dorsal sepal free, erect, narrowly linear or linear-ovate, acute, 13-18 mm long, 1-1.5 mm wide, 3-veined, semiterete above the middle, the lateral sepals connate to the apex into a narrowly ovate lamina, concave at the base, 13-17 mm long, 5 mm wide, 6-veined together; **petals** yellow-green, narrowly linear-ovate, acute, the margins cellular erose or microscopically denticulate, 5 mm long, 1 mm wide, thickened above the middle; **lip** yellow-green, thick, oblong with thin erect margins below the middle, 3 mm long, 1.25 mm wide, the apex rounded, the disc with an obscure pair of low calli on the apical third, the disc cleft below the middle into the rounded basal cavity, articulated with the bulbous apex of the column-foot; **column** green, stout, longitudinally winged above the middle, 3 mm long, the apex cucullate, the foot thick with the apex of the ovary, the apex free, bulbous.

BOLIVIA: **Santa Cruz**: epiphytic in moist forest south of Yapacani, alt. 600 m, 7 Sept. 1991, *C. Luer, J. Luer, L. Moreno & D. Ric 15406* (Holotype: MO).

This species, known from a seasonally dry forest of the lowland plains of north-central Bolivia, is closely related to the *B. prorepens*-complex. The larger flowers of *B. ricii* resemble those of *B. dolichorhiza*. Vegetatively, *B. ricii* is distinguished by the narrowly fusiform-ovoid leaves that are abruptly narrowed below at the sessile base, and borne by very short ramicauls. The habit appears very similar to that of several species of *Dryadella*. The extremely abbreviated rhizomes create great masses of densely packed leaves that accumulate on the trunks of large trees.

Barbosella schista Luer & Escobar, Orquideología 16: 7, 1983.

Ety.: From the Greek *schistos*, "cleft," referring to the free lateral sepals.

Plant medium in size, epiphytic, long-repent, scandent, up to 1 meter in length, the rhizome stout, elongated, occasionally branching, 1-2 cm long between ramicauls, with a tubular sheath near the middle; roots thick, produced singly or doubly at the apex (or base) of a segment of rhizome. Ramicauls ascending, produced in pairs, 8-10 mm long, enclosed by 1-2 thin, loose, tubular sheaths. **Leaf** suberect, thickly coriaceous, linear-elliptical, subacute, 3-4.5 cm long, 0.7-0.9 cm wide, gradually narrowed below into the subpetiolate base. **Inflorescence** a solitary flower, produced singly; peduncle slender, erect, 9-11 cm long; floral bract thin, oblique, tubular, 4-5 mm long, enclosing the pedicel; pedicel stout, 1.5 mm long, with a filament 3.5 mm long; ovary smooth, 2.5 mm long; **sepals** membranous, dark red-brown, the inner halves of the laterals light tan, the dorsal sepal free, erect, narrowly linear, acute, 24 mm long, 1.5 mm wide, 3-veined, the lateral sepals narrowly triangular, acute, connate 5 mm, 25 mm long, 7 mm wide, concave basally; **petals** membranous, red-brown, narrowly ovate, acute, 10 mm long, 1.25 mm wide, the margins microscopically serrulate; **lip** green, suffused with purple-brown, thick, fleshy, ligulate-oblong, 4.5 mm long, 1.3 mm wide, the apex acute, the base rounded, deeply concave, articulated with the bulbous apex of the column-foot, the disc with a shallow, central cavity, with a pair of low, rounded calli above the middle; **column** greenish white, stout, longitudinally winged above the middle, 4 mm long, the apex cucullate, the foot thick with the apex of the ovary, the apex free, bulbous.

COLOMBIA: **Norte de Santander**: epiphytic in cloud forest, Alto de San Francisco, alt. 2750 m, 6 May 1982, *C. Luer, J. Luer, R. Escobar & D. Portillo 7751* (Holotype: SEL; Isotypes: COL, JAUM).

This vinelike species is apparently restricted to the Eastern Cordillera of Colombia where it has been found on only one occasion. It is little more than a small form within the *B. cucullata* complex with nearly free lateral sepals. The leaves are produced in pairs separated by an elongated rhizome, as in the repent form described as *B. longipes*, but the most distinguishing feature of *B. schista* is the separation of the lateral sepals. The lip also differs in the acute, bicallous apex.

Barbosella spiritu-sanctensis (Pabst) F. Barros & Toscano, Anais do 35. Con. Nac. de Bot. 23, 1990.

Bas.: *Pleurothallis spiritu-sanctensis* Pabst, Bradea 2(10): 54, 1975.

Ety.: Named for the province of Espírito Santo where the species was discovered.

Plant very small, epiphytic, long-repent, up to 5 cm in length, the rhizome slender, elongated, occasionally branching, 1-4 mm long between ramicauls, enclosed by 1-3 tubular sheaths; roots slender but as thick as the rhizome, produced singly at nodes along the rhizome. Ramicauls ascending, 0.5-1 mm long, enclosed by 1 thin, tubular sheath. **Leaf** prostrate, thickly coriaceous, suborbicular to elliptical, the apex entire, obtuse to rounded, 3-4 mm long, 2-4 mm wide, the rounded base contracted into the nearly absent petiole. **Inflorescence** a solitary flower, produced singly; peduncle slender, erect, 15-18 mm long, with a minute bract below the middle; floral bract oblique, 1 mm long, enclosing the pedicel; pedicel 0.5 mm long, with a filament 1 mm long; ovary smooth, 1-1.5 mm long; **sepals** membranous, pale yellow, veined in red, the dorsal sepal free, erect, narrowly ovate, acute, 6.5 mm long, 1.5 mm wide, 3-veined, the lateral sepals ovate, oblique, 6 mm long, 4.5 mm wide together, 6-veined, connate 2 mm; **petals** membranous, colored as the sepals, narrowly linear-triangular, acute, 6 mm long, 0.75 mm wide; **lip** red, ovate-trilobed, 3 mm long, 2 mm wide expanded, the apical lobe ovate, obtuse, the lateral lobes below the middle, erect, broadly rounded with an anterior margin obtusely angled, the disc with a low pair of longitudinal calli, the base rounded with a distinct cavity to accommodate the apex of the column-foot; **column** slender, 2 mm long, the apex hooded, denticulate, the foot 1.5 mm long, the apex free, articulated with the base of the lip.

BRAZIL: **Espírito Santo**: epiphytic in humid forest, Pedra Azul, alt. 1000 m, 12 Feb. 1970, *R.A. Kautsky 236* (Holotype: HB), C. Luer illustr. 14710.

This tiny Brazilian species is apparently known only from the type-collection. Although described in *Pleurothallis*, this species is a classical example of *Barbosella*. In habit it is reminiscent of some of the other tiny species: a minute, creeping rhizome; tiny, round leaves; a longer, hairlike peduncle; membranous sepals and petals; and a broadly trilobed lip, the concave base articulated with the slightly bulbous, free tip of the column-foot. The anther contains four equal-sized pollinia.

Barbosella spiritu-sanctensis is very closely allied to *B. crassifolia*, differing only in the shorter, broader, lateral lobes of the lip, and the presence of a pair of low, longitudinal, central calli.

Barbosella trilobata Pabst, Arch. Jard. Bot. Rio de Janeiro 14: 21, 1956.

Ety.: From the Latin *trilobatus*, "with three lobes," referring to the shape of the lip.

Plant very small, epiphytic, long-repent, up to 15 cm long, the rhizome slender, elongated, occasionally branching, 2-3 mm long between ramicauls, enclosed by 2-3 thin, tubular sheaths; roots as thick as the rhizome, produced singly along the rhizome. Ramicauls ascending, 0.5-1.5 mm long, enclosed by 1-2 thin, tubular sheaths. **Leaf** suberect, thickly coriaceous, elliptical, acute, 4-6 mm long, 1.5-2.5 mm wide, cuneate below into the subpetiolate base. **Inflorescence** a solitary flower, produced singly; peduncle slender, erect, 15-17 mm long, with a bract below the middle; floral bract oblique, acute, 1-1.5 mm long, enclosing the pedicel; pedicel 0.5 mm long, with a filament 1 mm long; ovary smooth, 1 mm long; **sepals** membranous, pale yellow, veined in purple, the dorsal sepal free, erect, narrowly ovate, obtuse, 5.5 mm long, 2 mm wide, 3-veined, the lateral sepals ovate, oblique, connate 2 mm into a lamina 4.5 mm long, 5 mm wide, 4-veined; **petals** membranous, colored as the sepals, narrowly ovate, acute, 5 mm long, 1.25 mm wide, the margins cellular-erose; **lip** purple, ovate-trilobed, 2.5 mm long, 2.5 mm wide expanded, the apical lobe ovate, obtuse, with thin, minutely erose margins, the lateral lobes below the middle, erect, broadly rounded, obtusely angled anteriorly, the disc with a tall, thick pair of parallel calli from the base to the middle where they are joined by calli from the lateral lobes, the base thinly hinged to the apex of the column-foot; **column** slender, 2.5 mm long, the apex denticulate, hooded, the foot 2 mm long, the apex not bulbous.

BRAZIL: **Paraná**: Mun. Sâo José dos Pinhais, Saltinho, 21 Nov. 1952, *G. Hatschbach 2732* (Holotype: HB), C. Luer illustr. 14709; Mun. Tijucas do Sul, Saltinho, 25 Oct. 1971, *G. Hatschbach 27578* (C, K). **Rio de Janeiro**: epiphytic in forest near Petrópolis, alt. ca. 1000 m, flowered in cultivation by the Verboonens at Orquidário Binot, 30 Nov. 1989, *C. Luer 14498* (MO); flowered in cultivation by J & L Orchids, Easton, CT, from among the roots of a plant of *Pleurothallis mirabilis* purchased from Orquidario Binot, 5 May 1990, *C. Luer 14740* (MO).

This exceptional Brazilian species is apparently local and widely distributed in southern Brazil. In habit it is similar to some other minute, repent species: a tiny, creeping rhizome; minute leaves; a longer, hairlike peduncle; membranous sepals and petals; and a broadly trilobed lip. However, the lip is simply hinged to the tip of the column-foot without the typical ball-and-socket articulation. Instead, a tall, thick pair of adjacent, parallel calli begin at the base and course forward.

The forward margin of the typical cavity at the base of the lip of *Barbosella* is seen to be composed of a pair of calli in apposition. It does not require much imagination to interpret the pair of calli on the lip of *B. trilobata* as precursors of the calli that form the typical cavity seen at the base of all the other species of *Barbosella*.

Barbosella vasquezii Luer, sp. nov.

Ety.: Named in honor of Roberto Vásquez Ch. of Santa Cruz, Bolivia, co-discoverer of this species, and authority on Bolivian orchids.

Species haec *Barbosellae prorepentis* (Rchb.f.) Schltr. affinis, sed habitu majore et labello majore infra medium bilamellato distinguitur.

Plant small, epiphytic, caespitose, to shortly repent; roots slender. Ramicauls ascending to erect, 5-7 mm long, enclosed by 2-3 thin, loose, tubular sheaths. **Leaf** erect, fleshy, thickly coriaceous, semiterete, linear to narrowly elliptical-obovate, subacute, 2.5-4.5 cm long, 3-4 mm wide, gradually narrowed below into the subpetiolate base. **Inflorescence** a solitary flower, produced singly; peduncle slender, erect, 3-5 cm long; floral bract thin, tubular, 3-4 mm long, enclosing the pedicel; pedicel stout, 1-2.5 mm long, with a filament 2-3 mm long; ovary smooth, 1.5-2.5 mm long; **sepals** membranous, yellow to green, the dorsal sepal free, erect, narrowly linear or linear-ovate, narrowly obtuse, 12-14 mm long, 1.5-2 mm wide, 3-veined, thickened above the middle, the lateral sepals connate to the apex into an ovate lamina, concave at the base, minutely bifid at the narrowly obtuse apex, 11-14 mm long, 6-6.5 mm wide, 6-veined together; **petals** colored as the sepals, narrowly ovate, acute, the margins usually cellular erose or microscopically denticulate, 7-7.5 mm long, 1.5-1.75 mm wide, thickened above the middle; **lip** yellow or green, suffused with purple centrally, thick, ovoid-oblong with thin, rounded, erect margins below the middle, 4.5 mm long, 1.5 mm wide, the apex obtuse, the disc with a pair of distinct lamellae converging from within the erect sides below the middle to above the middle, with a shallow, ovate depression between them below the middle, the rounded base deeply concave with the anterior margin cleft, articulated with the bulbous apex of the column-foot; **column** greenish white, stout, winged above the middle, 2.5 mm long, the apex cucullate, bidentate, the foot thick with the apex of the ovary, the apex free, bulbous.

BOLIVIA: **Cochabamba**: Chapare, between Cochabamba and Villa Tunari, alt. 1900 m, 15 Jan. 1988, *C. Luer, J. Luer, R. Vásquez, A. Vogel, T. & D. Mulder 12835* (Holotype: MO); same area, Dec. 1978, collected by C. Luer, J. Luer, F. Fuchs et al., flowered in cultivation 26 Dec. 1979, *C. Luer 4843* (SEL).

This species is closely related to the far-flung *B. prorepens*-complex. It is known from the Andes of Peru and Bolivia, as if an austral extension of the distribution of *B. prorepens*. *Barbosella vasquezii* is distinguished by the usually larger habit, but smaller plants are indistinguishable vegetatively from those of *B. prorepens*. The flowers also are extremely similar, but the larger lip of *B. vasquezii* is readily distinguished by a pair of thin lamellae converging from thin, rounded, erect margins below the middle.

REFERENCES FOR BARBOSELLA AND BARBRODRIA

AMES, O. & C. SCHWEINFURTH, 1934. Botanical Museum Leaflets 3: 39.
ANGELY, J., 1973. Flora Analítica e Fitogeográfica do Estado de Sâo Paulo 1282.
HAMER, F., 1982. Orchids of Nicaragua. Icones Plantarum Tropicarum 7: 606, 607.
LUER, C.A., 1981. *Barbrodria*, A new genus in the Pleurothallidinae. Selbyana 5: 386-387.
---------- 1986. Icones PLeurothallidinarum I. Systemmatics of the Pleurothallidinae. Monogr. Bot. Syst. Missouri Bot. Gard. 15: 17.
REICHENBACH, H.G., 1900. Xenia Orchidaceae 3: 8, t: 206.
SCHLECHTER, R., 1918. Die Gattung *Restrepia* H.B.u.Kth. Repert. Spec. Nov. Regni Veg. 15: 255-270.
WILLIAMS, L.O., 1939. Botanical Museum Leaflets 7: 188.

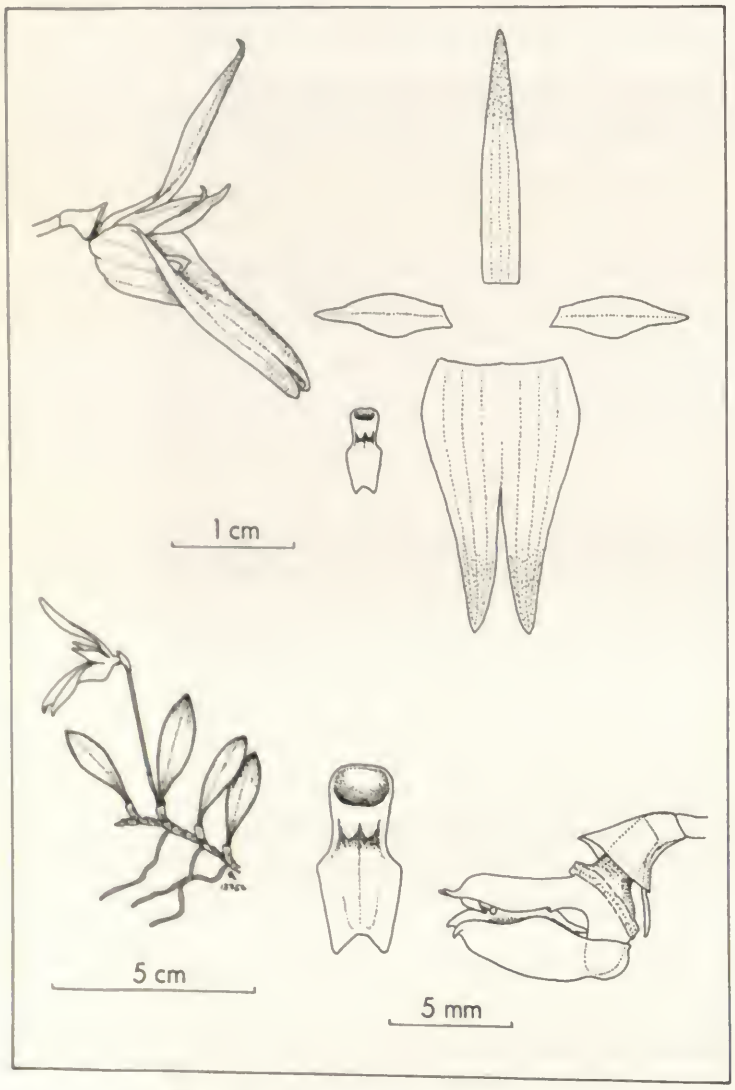


Fig. 1. Barbosella australis

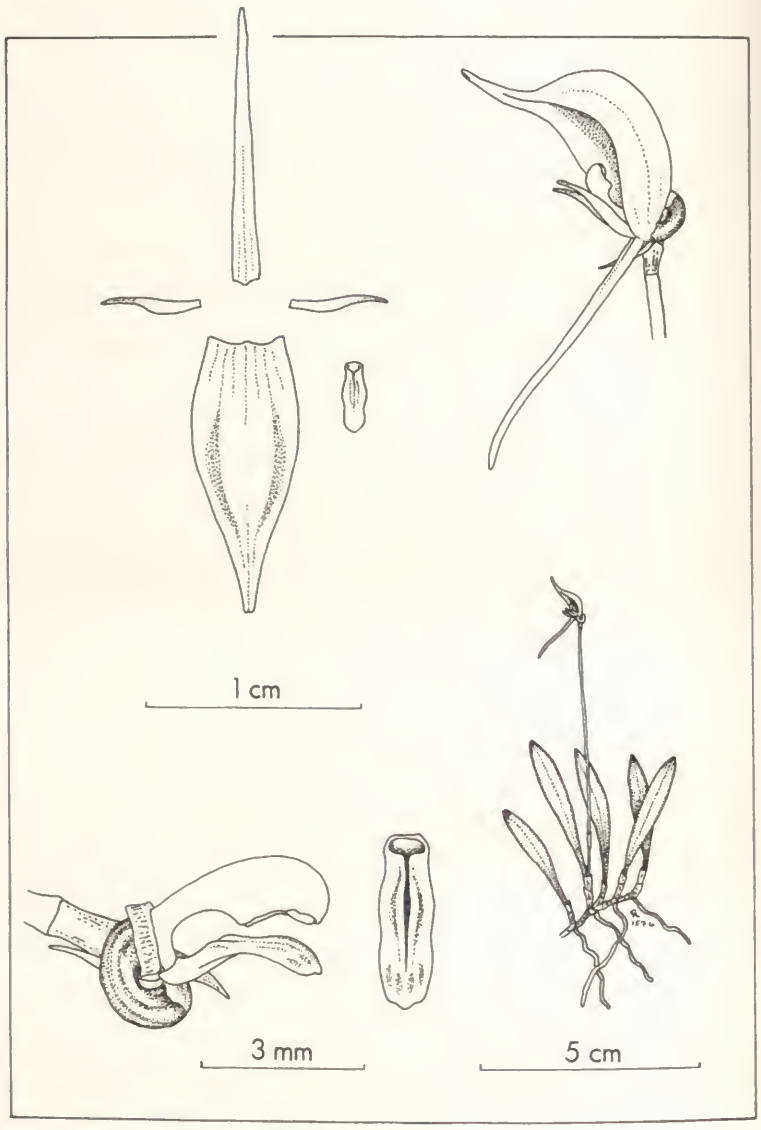


Fig. 2. Barbosella circinata

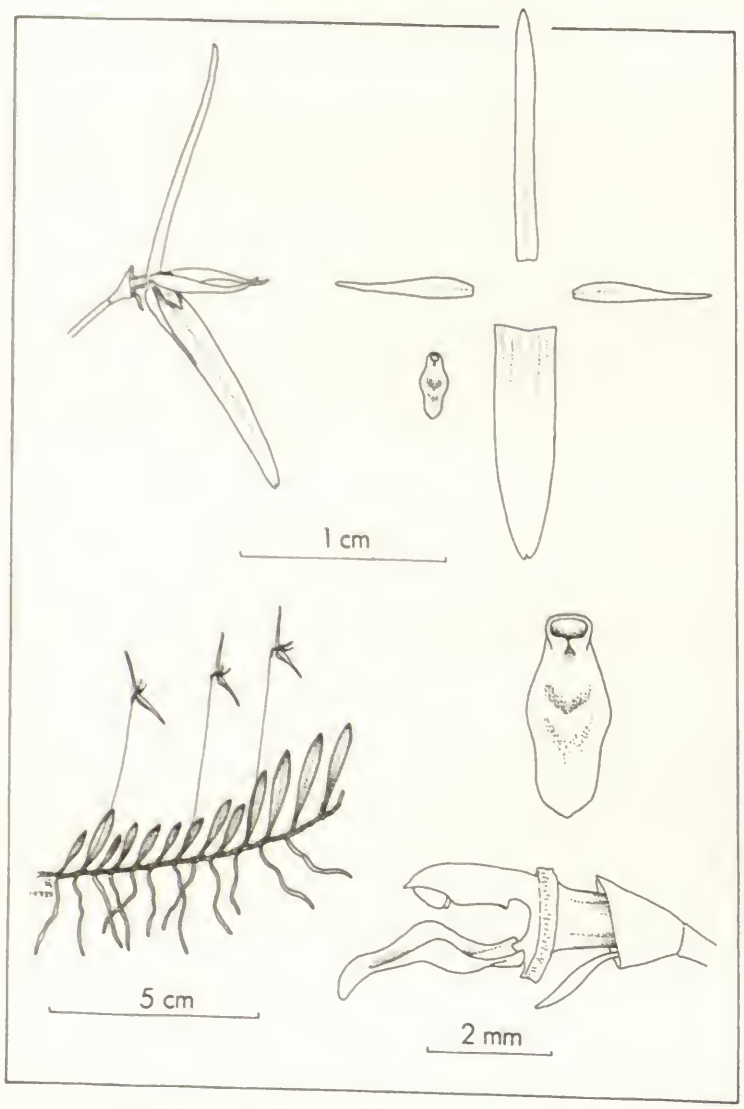


Fig. 3. Barbosella cogniauxiana

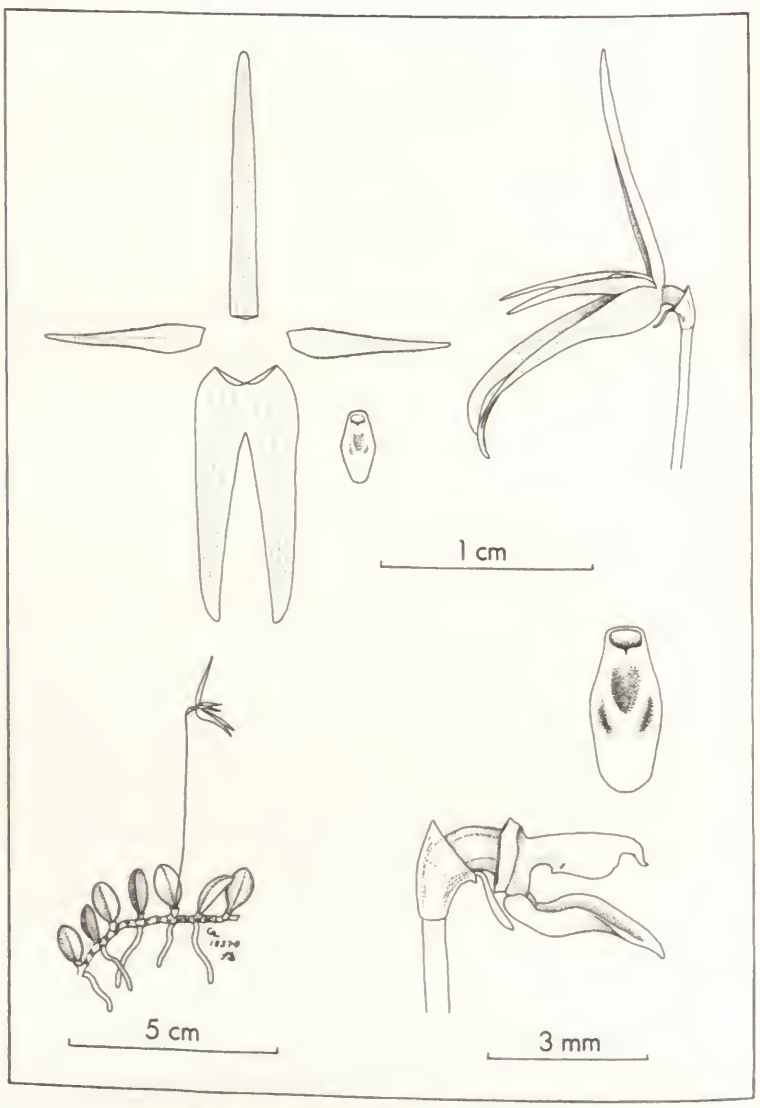


Fig. 4. Barbosella cogniauxiana

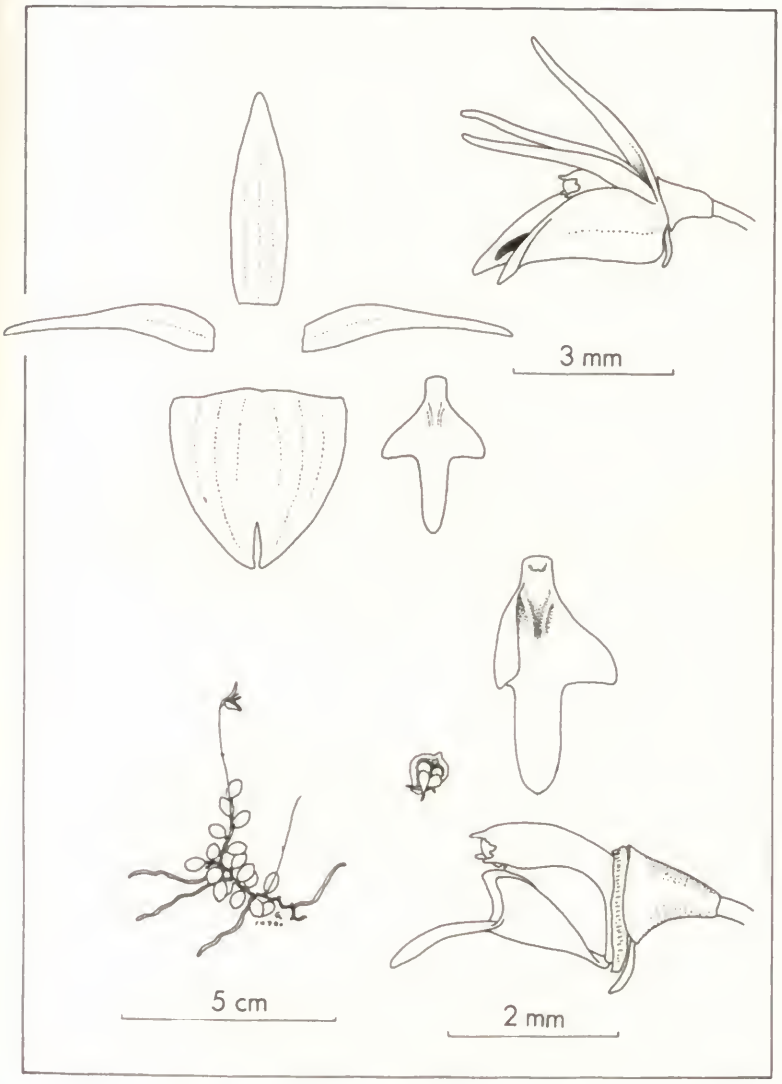


Fig. 5. Barbosella crassifolia

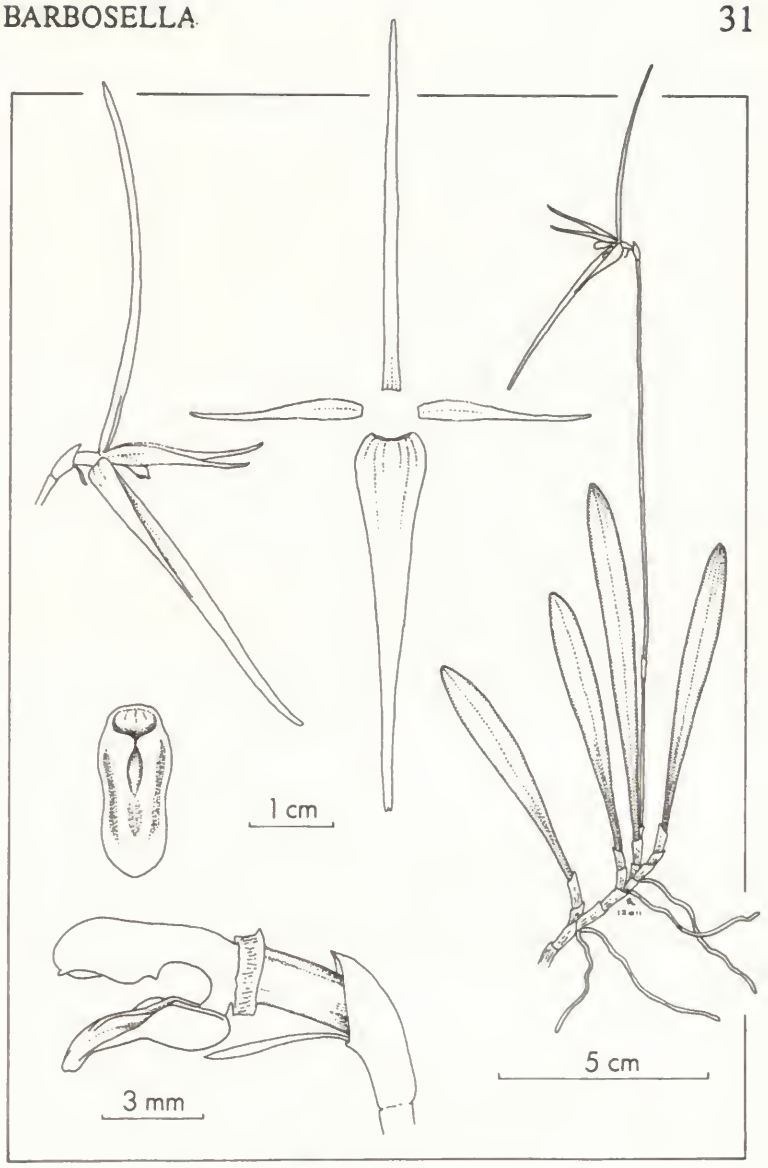


Fig. 6. Barbosella cucullata

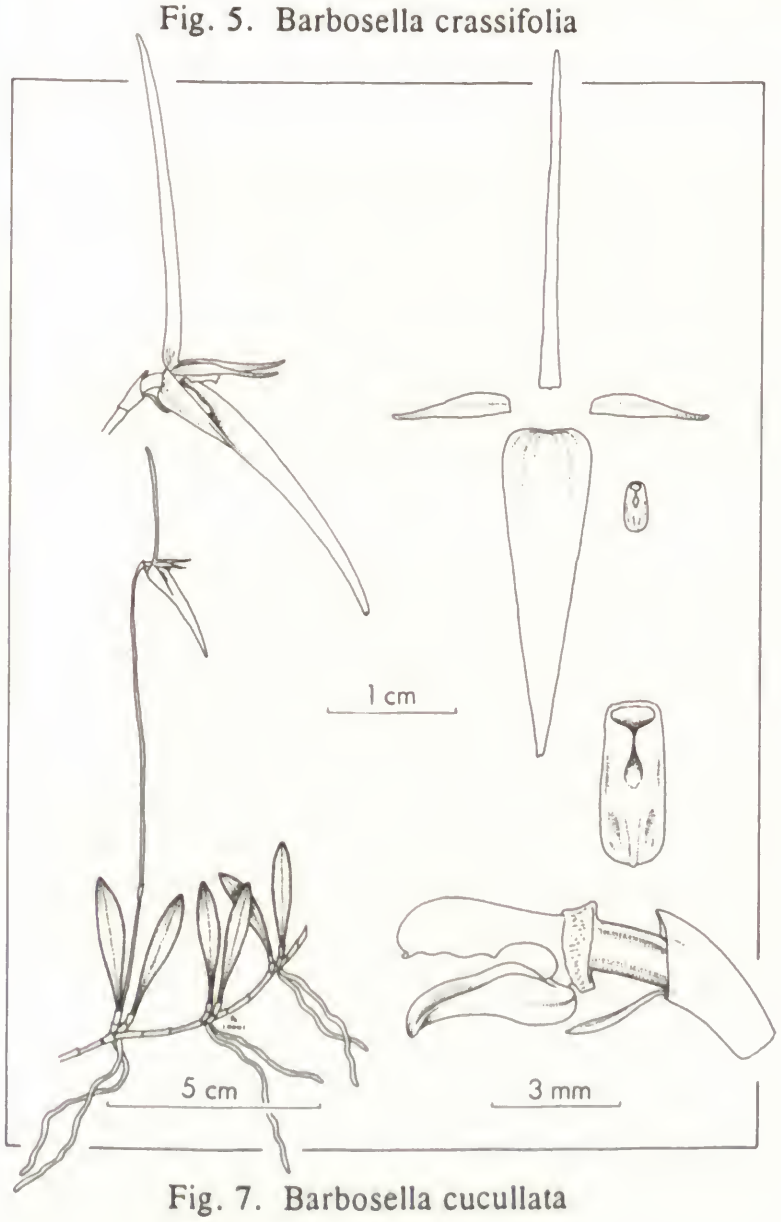


Fig. 7. Barbosella cucullata

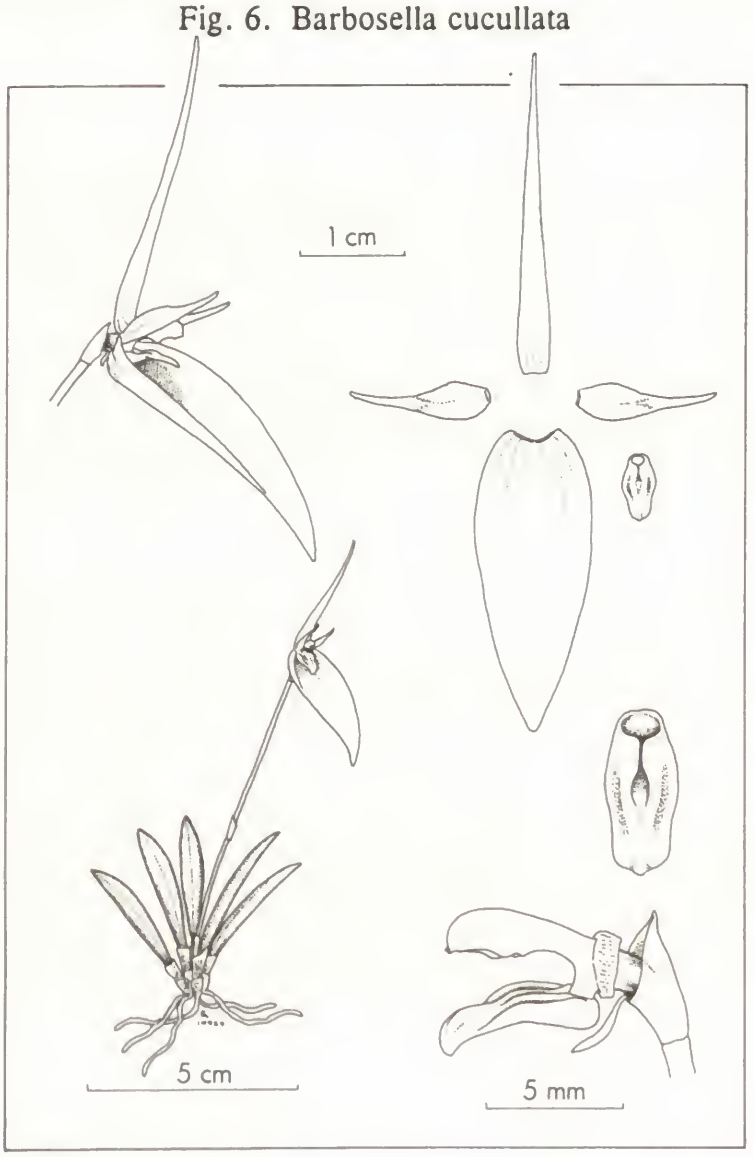


Fig. 8. Barbosella cucullata

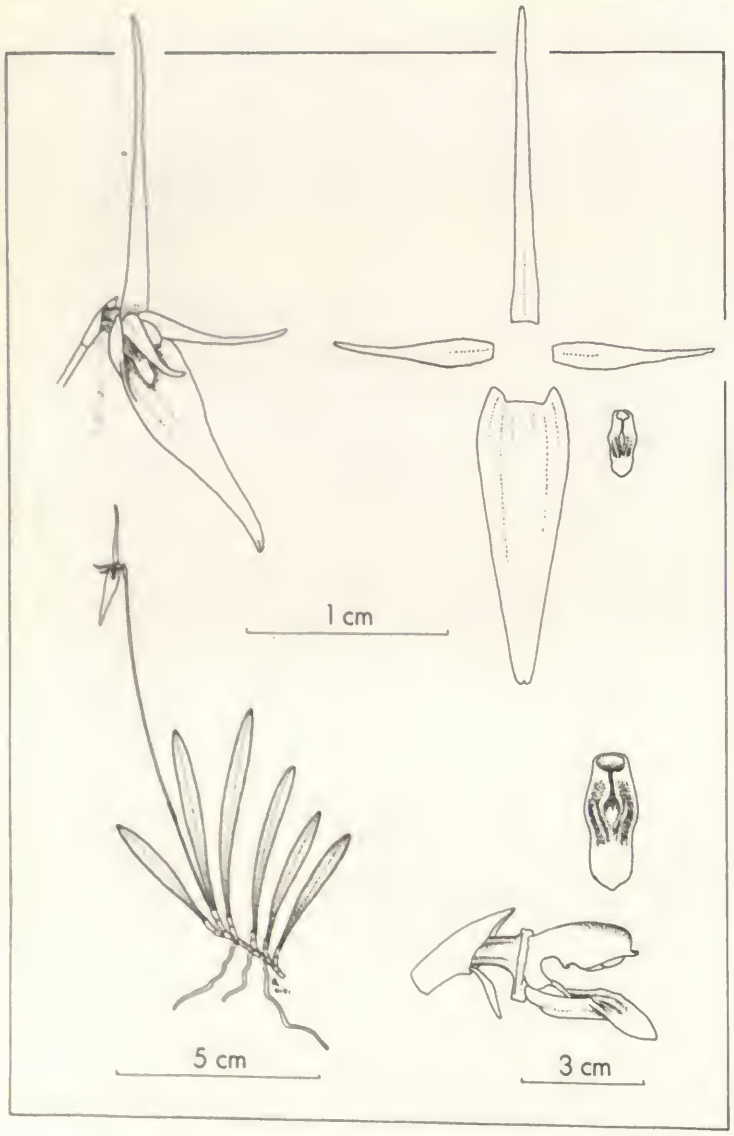


Fig. 9. Barbosella dolichorhiza

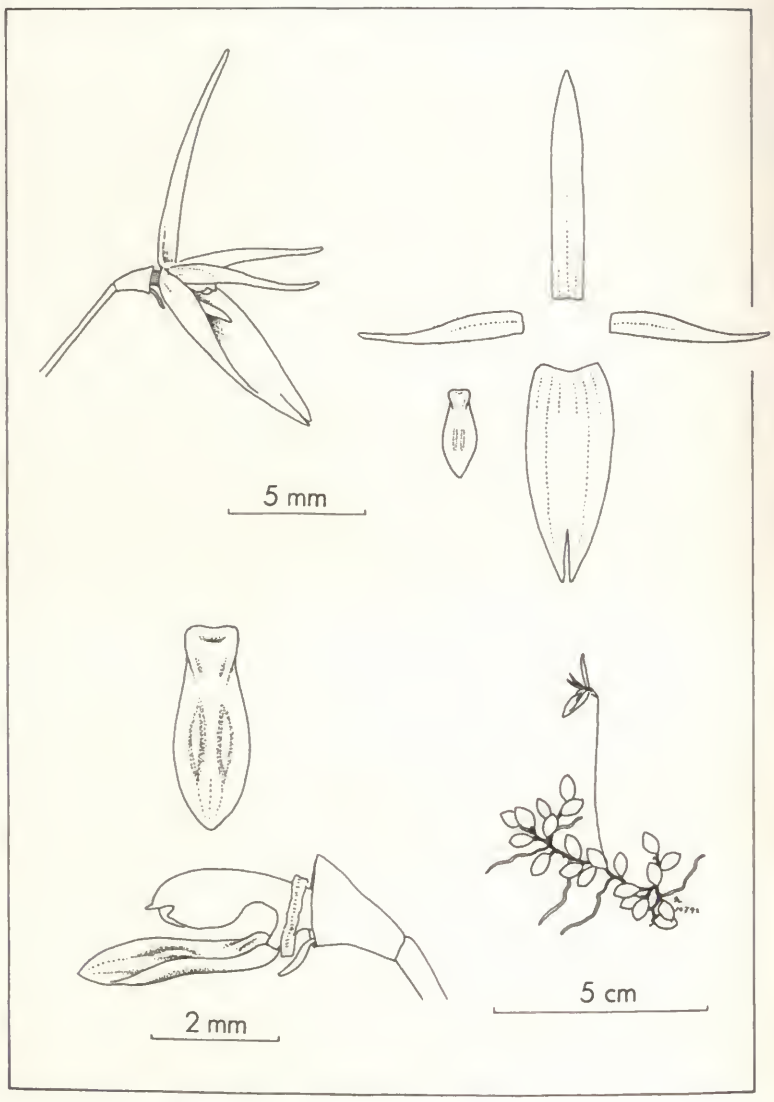


Fig. 10. Barbosella dusenii

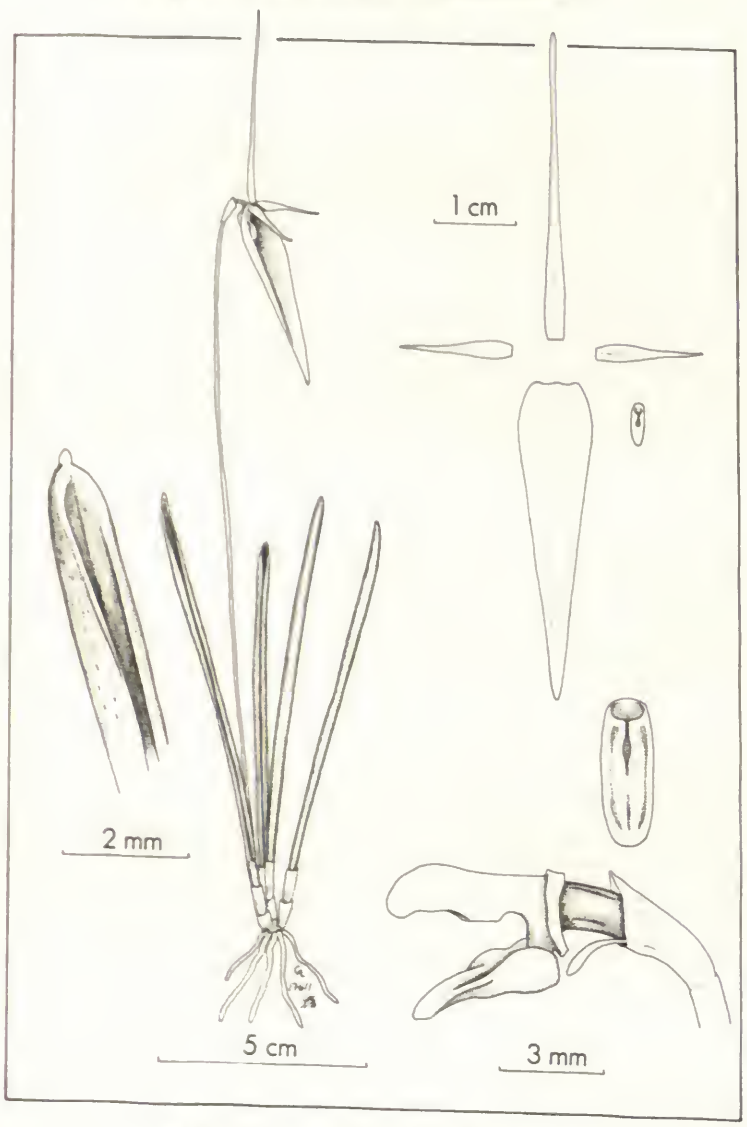


Fig. 11. Barbosella fuscata

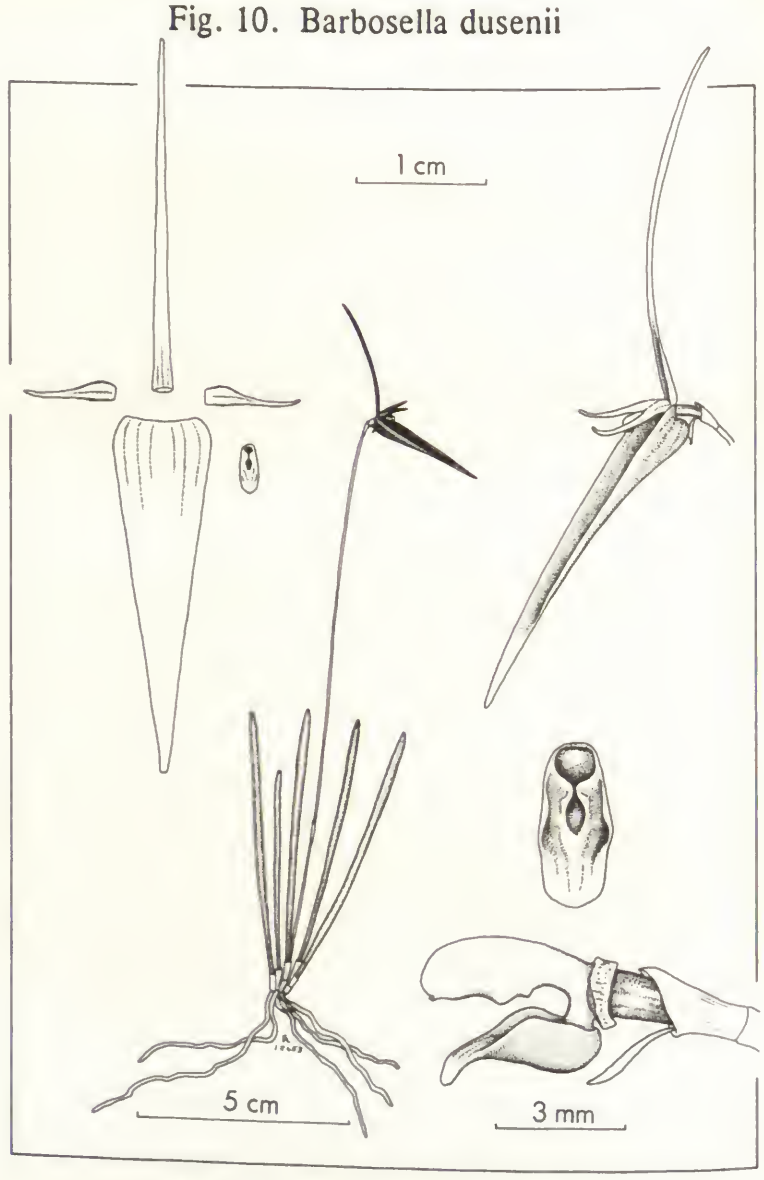


Fig. 12. Barbosella fuscata

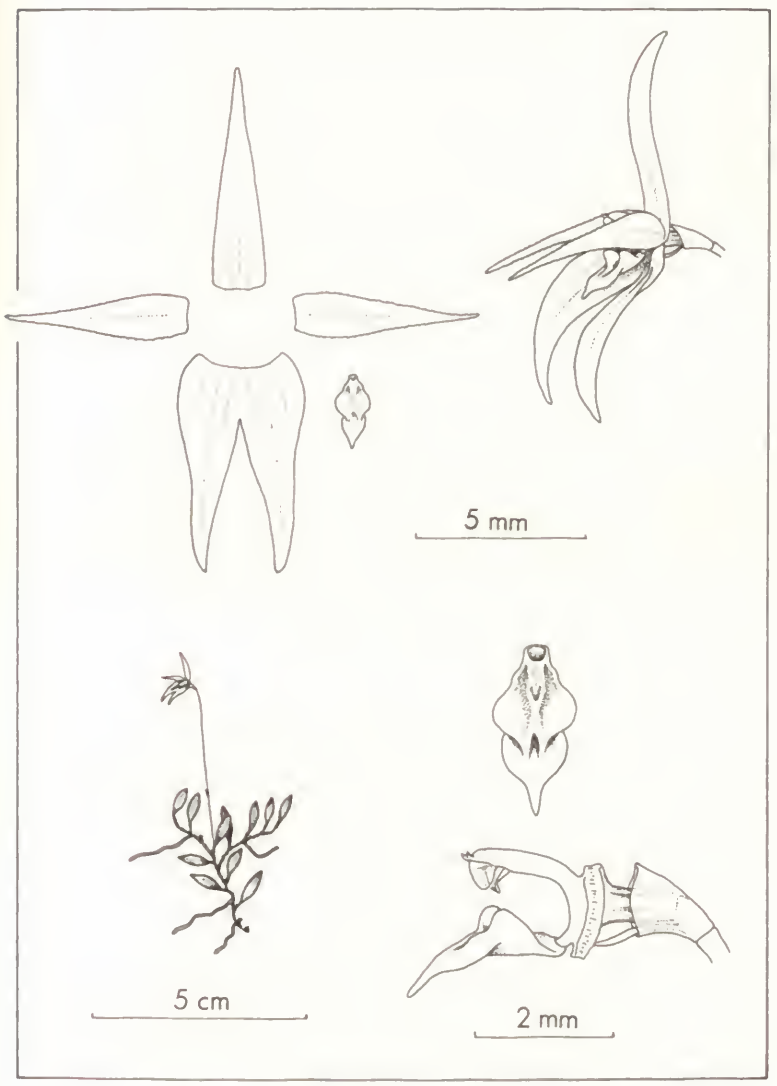


Fig. 13. Barbosella gardneri

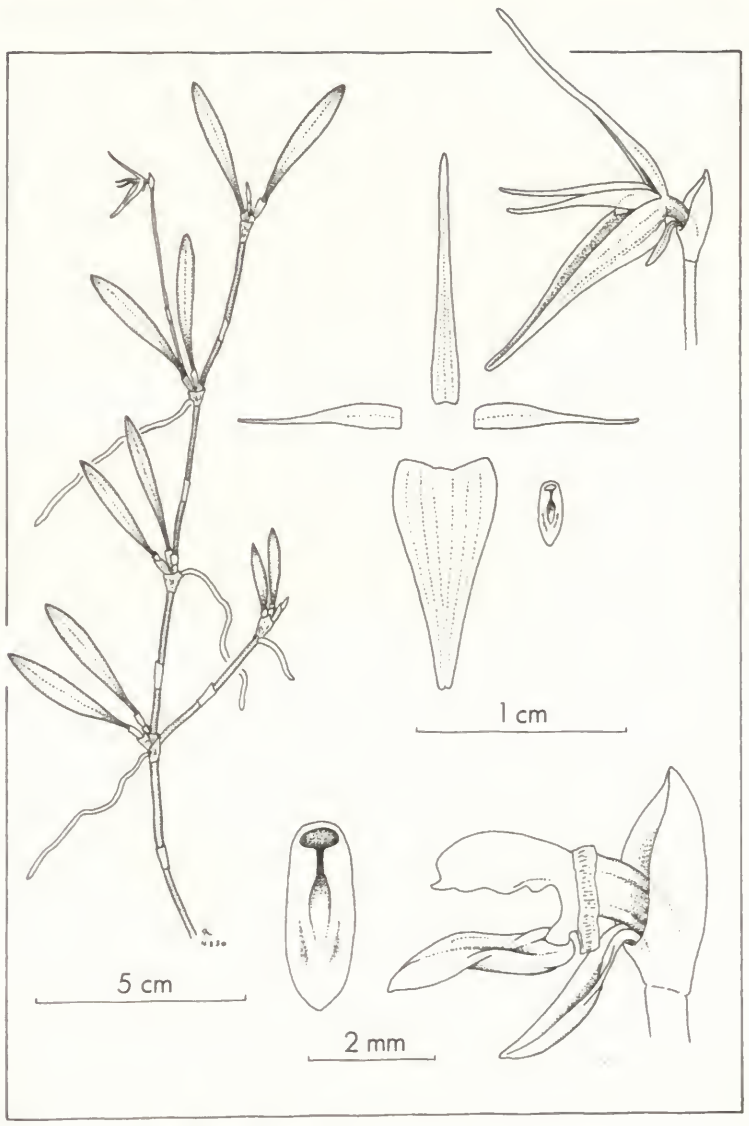


Fig. 14. Barbosella geminata

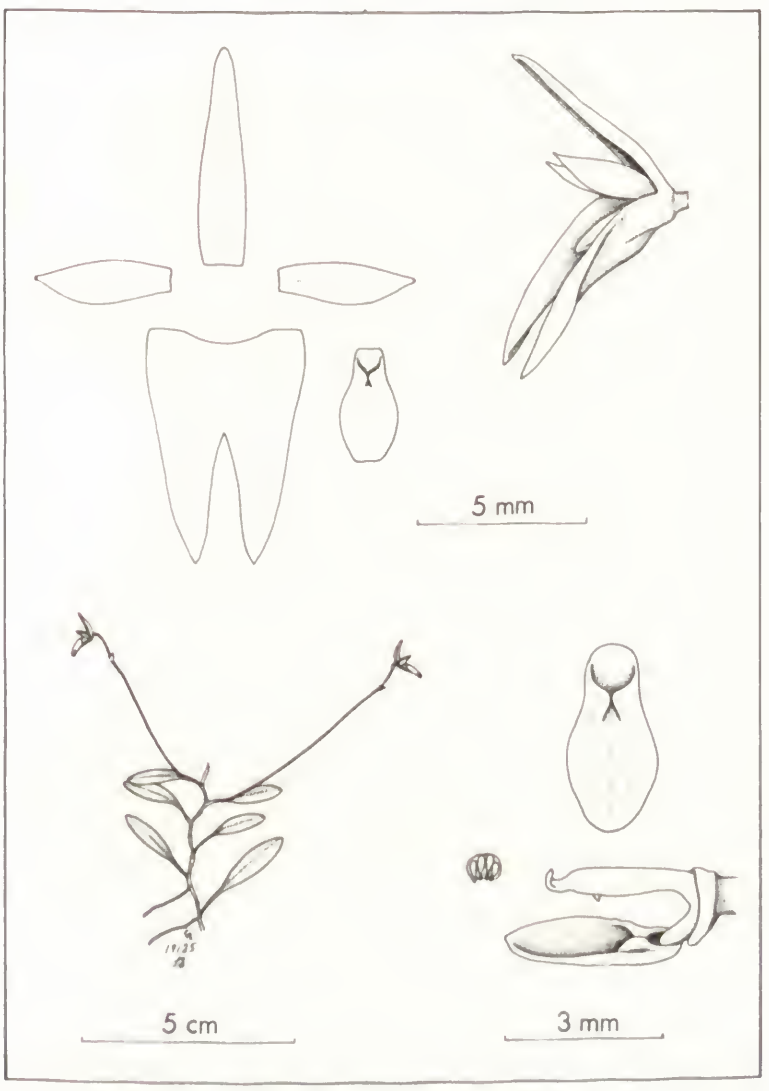


Fig. 15. Barbosella macaheënsis

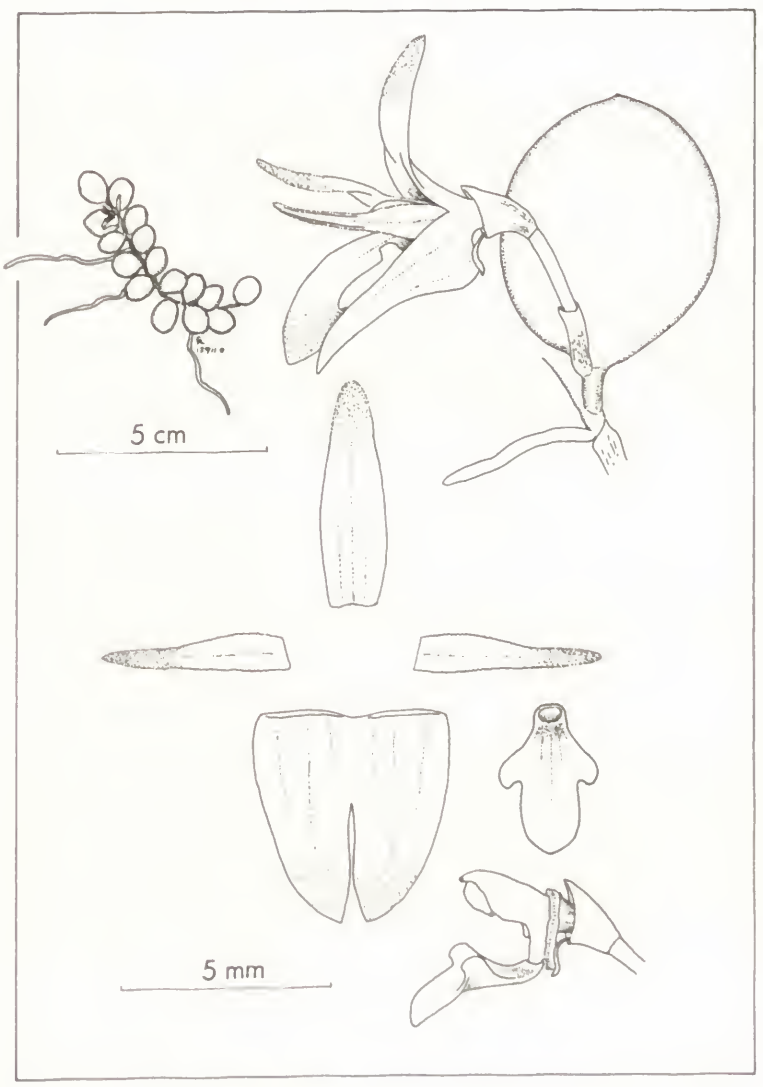


Fig. 16. Barbosella orbicularis

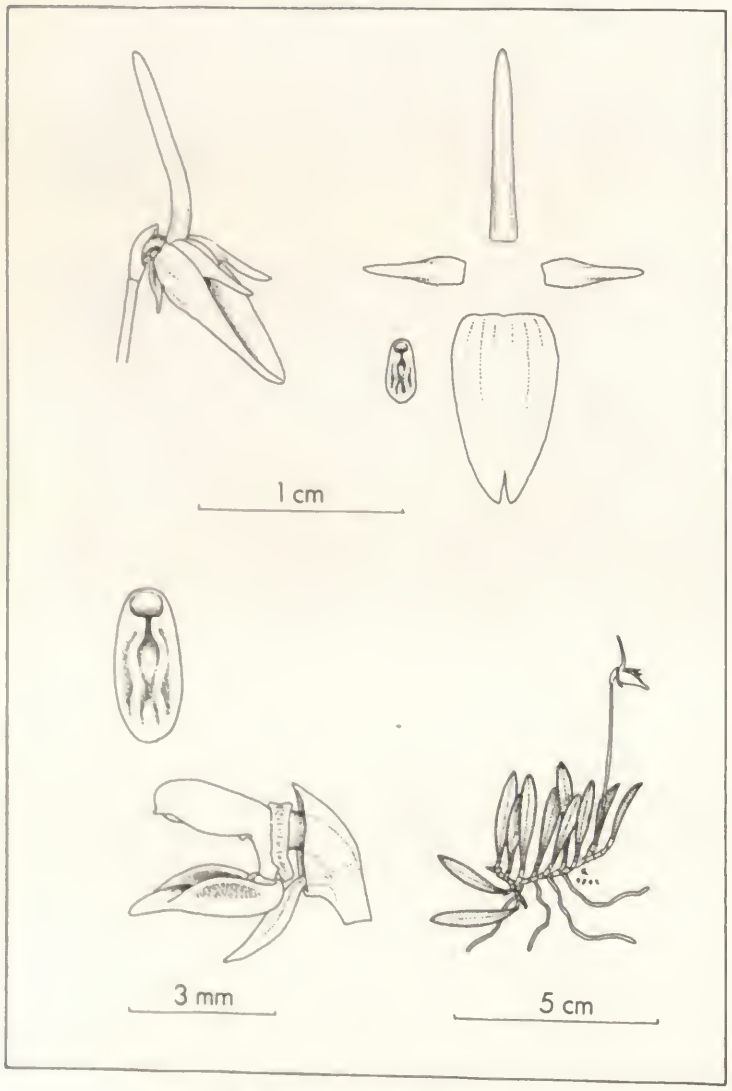


Fig. 17. Barbosella prorepens

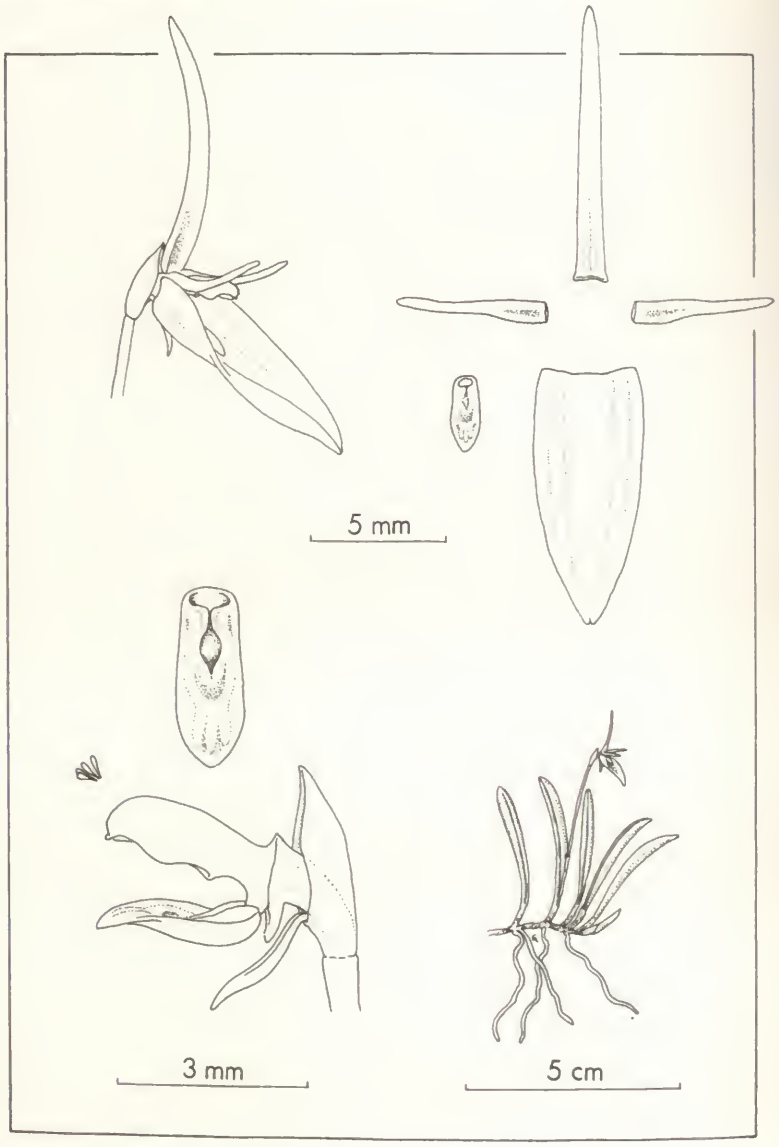


Fig. 18 Barbosella prorepens

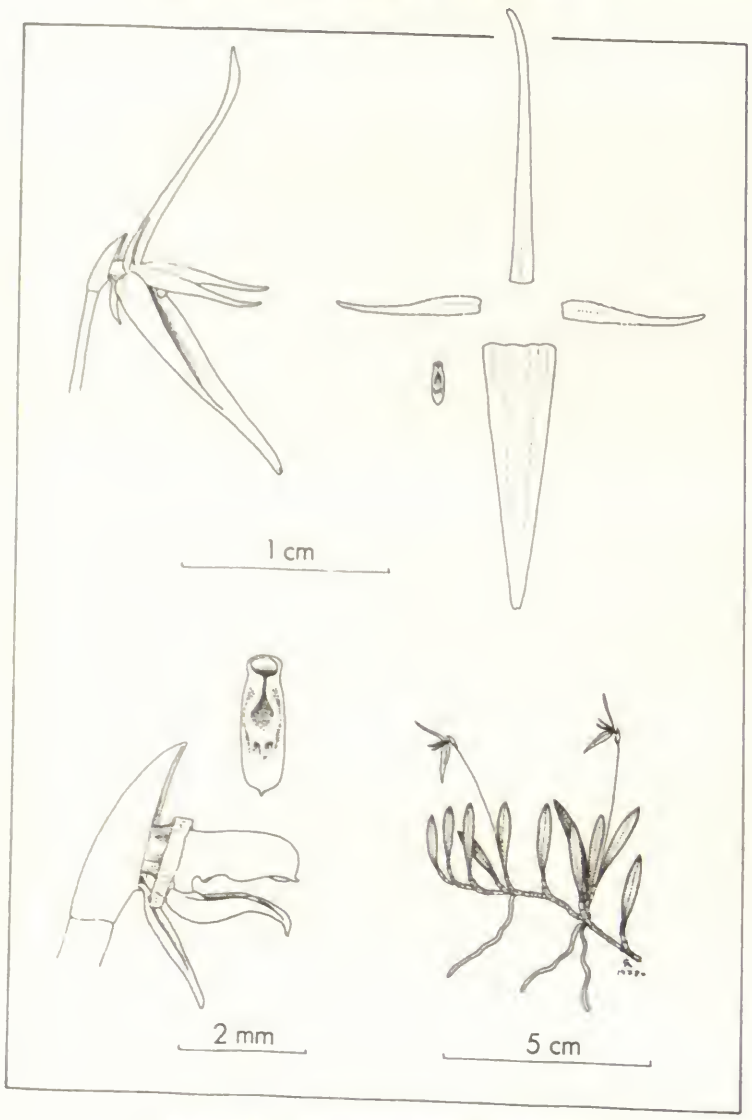


Fig. 19. Barbosella prorepens

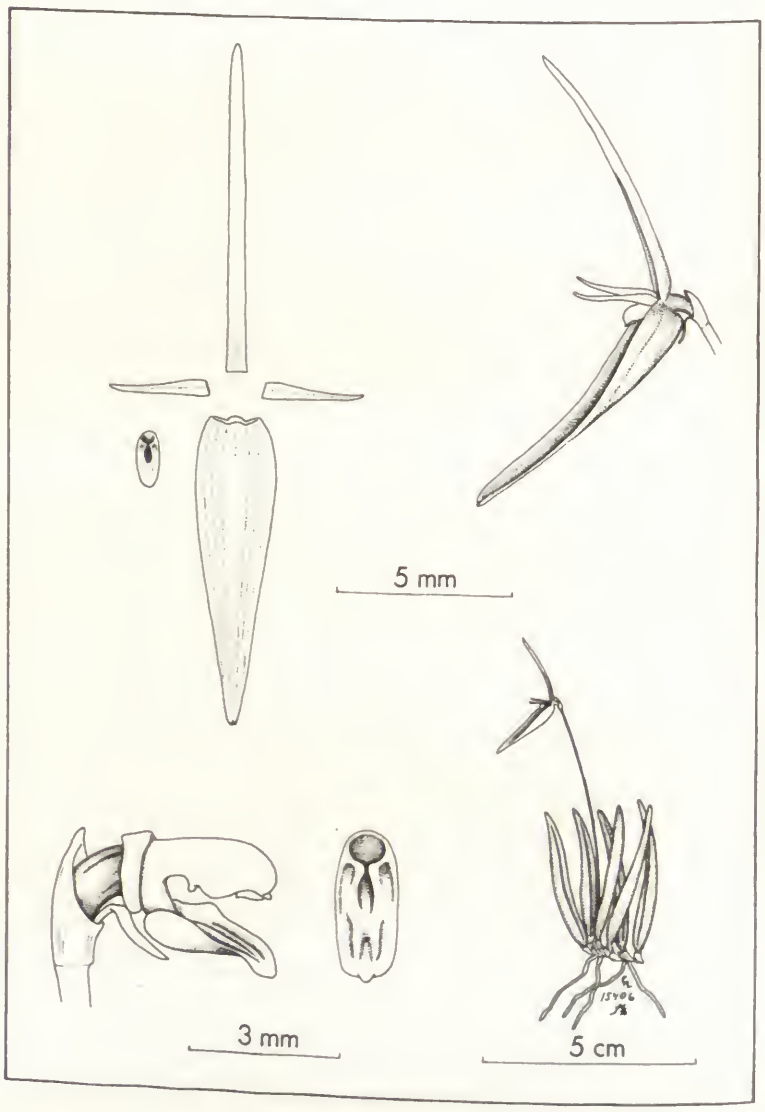


Fig. 20. Barbosella ricii

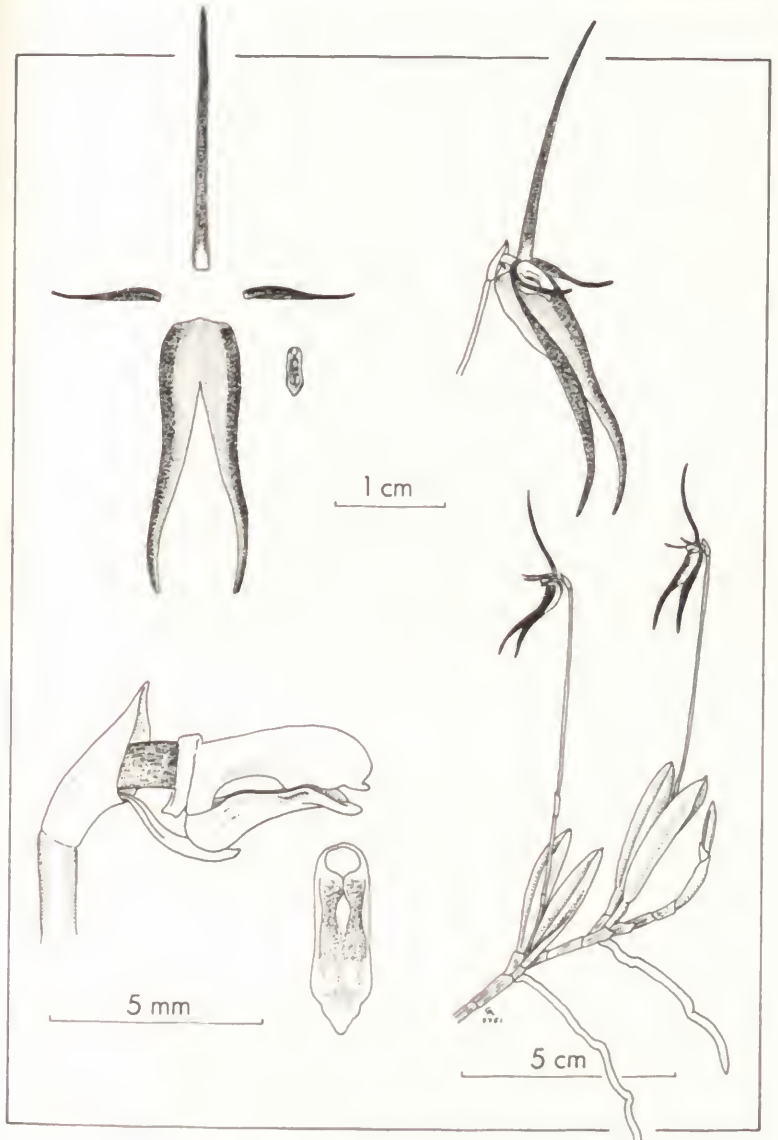


Fig. 21. Barbosella schista

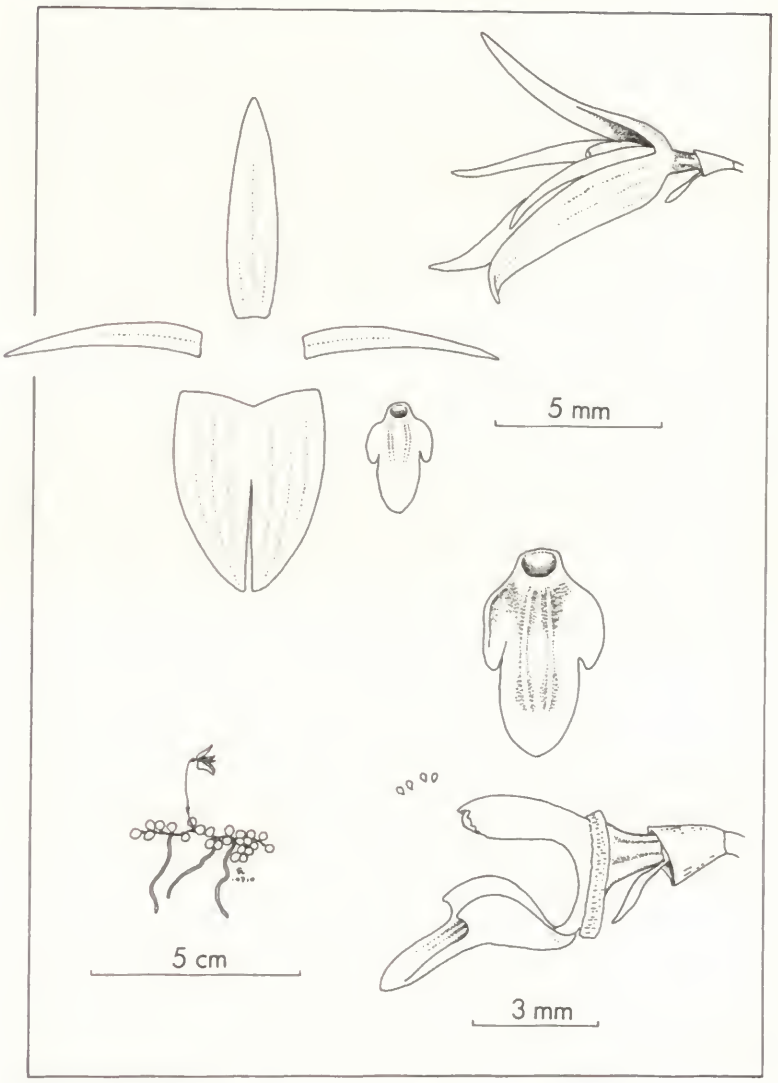


Fig. 22. Barbosella spiritu-sanctensis

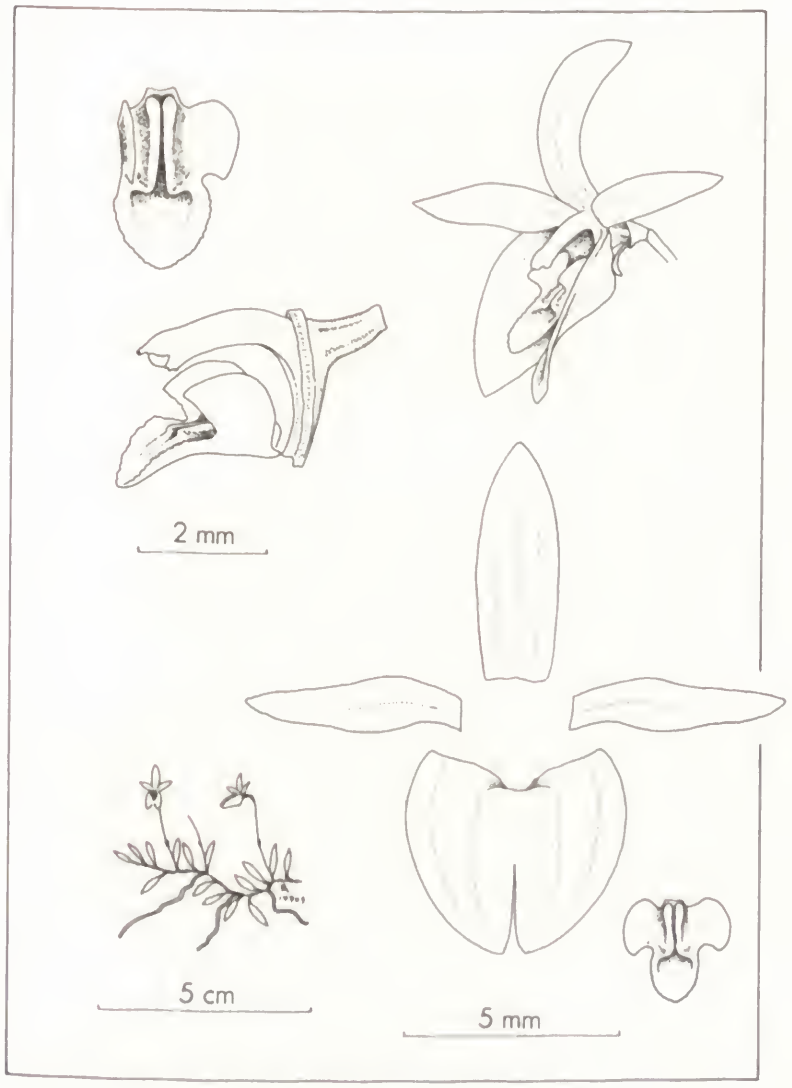


Fig. 23. Barbosella trilobata

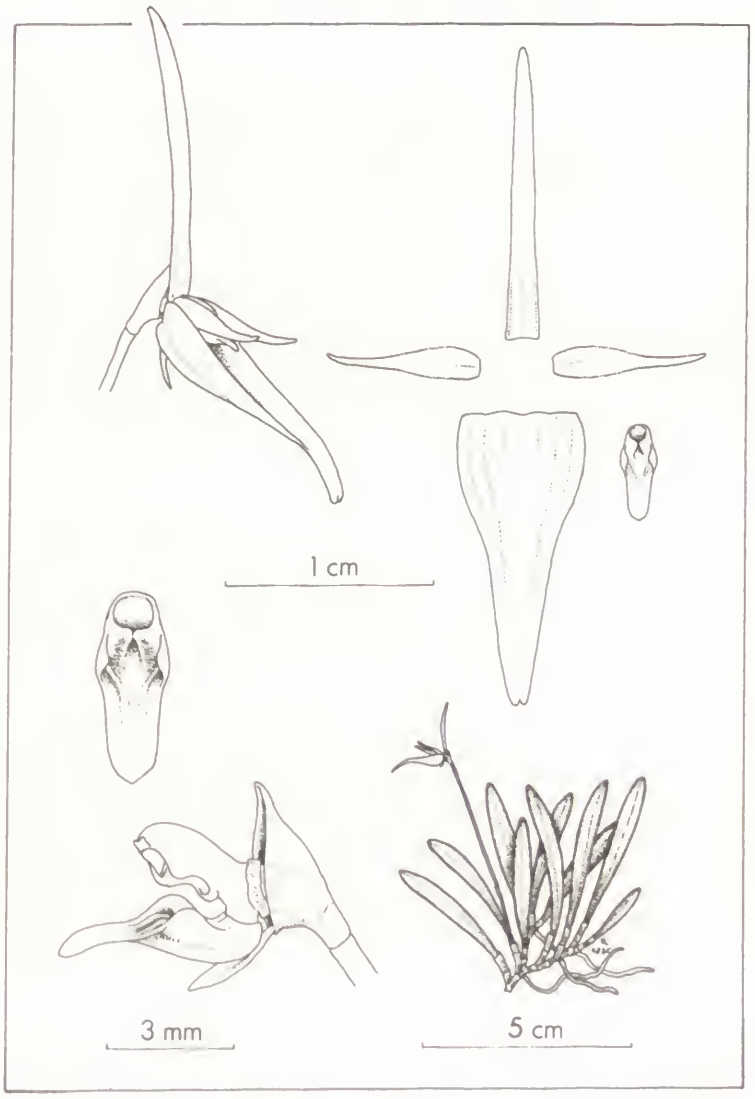


Fig. 24. Barbosella vasquezii

SYSTEMATICS OF THE GENUS *BARBRODRIA*

ABSTRACT

A history of *Barbrodria* Luer is given. As a unispecific genus, the description of the species will suffice for the genus.

In 1842, Lindley described in *Pleurothallis* two similar, very small, repent species from Brazil. Both had been collected by Miers and dispatched to Kew by Professor Gardner, for whom the species were named respectively. Schlechter transferred them to *Barbosella* when he proposed the genus in 1918, but he designated no type for the genus. In 1973, Joâo Angly chose *B. miersii* as the lectotype, but this happened to be the only non-conforming species of the genus. The lectotype was redesignated as *B. gardneri* in 1981.

Barbrodria miersii (Lindl.) Luer, Selbyana 5: 386, 1981.

Bas.: *Pleurothallis miersii* Lindl., Edwards' Bot. Reg. 28: Misc. 84, 1842.

Ety.: Named in honor of John Miers who first collected this species.

Syn.: *Restrepia miersii* (Lindl.) Rchb.f., in Wawra, Bot. Ergeb. Maxim. Bras. 150, 1866.

Syn.: *Humboldtia miersii* (Lindl.) Kuntze, Rev. Gen. 668, 1891.

Syn.: *Barbosella miersii* (Lindl.) Schltr., Repert. Spec. Nov. Regni Veg. 15: 262, 1918.

Plants perennial, very small, epiphytic, weak, long-repent, often 10 cm or more long, 1-5 mm long between ramicauls, often branching and forming dense mats; roots slender, produced along the rhizome. Ramicauls ascending, slender, 1-3 mm long, enclosed by a thin sheath. **Leaf** suberect to prostrate, coriaceous. smooth, elliptical, 2.5-7 mm long, 1.5-2.5 mm wide, the apex acute to subacute, apiculate, the base cuneate. **Inflorescence** a solitary flower, produced by a slender, erect peduncle 7-10 mm long, with a bract at the base; floral bract thin, oblique, acute, enclosing the pedicel and much of the ovary; pedicel stout, 0.5 mm long, with a short filament; ovary 0.75 mm long; **sepals** translucent yellow-white, membranous, ovate, acute, 1.8 mm long, 0.8 mm wide, 1-veined, the dorsal sepal free, more or less erect, the lateral sepals oblique, connate only at the base; **petals** membranous, elliptical, acute, 1 mm long, 0.3 mm wide, 1-veined, the margins microscopically denticulate; **lip** light yellow, thick, ovate, 0.9 mm long, 0.5 mm wide, the apex subacute to obtuse, the margins revolute below the middle, the disc shallowly sulcate, the base subcordate, hinged to the base of the column-foot; **column** stout, semiterete, 0.6 mm long, non-hooded, non-winged, the anther dorsal with the rostellum apical, the stigma ventral, the pollinia 4, free, yellow, pyriform, with a minute viscidium, the base of the column thick, pedestal-like with the apex of the ovary, without forming a foot.

BRAZIL: **Rio de Janeiro**: epiphytic in forests of the Organ Mountains, collected by J. Miers, Mar. 1841, *Gardner 5856* (Holotype: K); same area, July 1888, *J.T. de Moura 287* (BR); Theresópolis, 1859, *H. Wawra & Maly 458* (W); Petrópolis, 1879, *Burchell 2283* (W); Serra do Stetiaia, Mont Serrat, 21 Oct. 1903, *P. Dusén 194* (S); epiphytic in forest between Theresópolis and Salvador, alt. 950 m, 2 Dec. 1989, *C. Luer, J. Luer & 14545* (MO); Nova Friburgo, along Rio Macaé, alt. 1000 m, 25 Jan. 1997, *C. Luer, J. Luer, D. Miller & A. Toscano de Brito 18251* (MO). **Paraná**: Serra do Mar, Carvalho, epiphytic in primary forest, flowered in cultivation 12 Feb. 1910, *P. Dusén 9850* (AMES, S); 18 Nov. 1909, *P. Dusén 9535* (S); Munic. Guaratuba, road to Joinville, 31 Dec. 1952, *G. Hatschbach 2910* (AMES); Munic. Barras Rio Corvo, alt. 900 m, 20 Dec. 1969, *G. Hatschbach 23282* (NY). **São Paulo**: Bosque da Saude, 8 June 1921, *F.C. Hoehne 5614* (AMES, NY).

Barbrodria miersii is characterized by the thread-like rhizome with a row of tiny, elliptical leaves. It grows on mossy trunks of trees in moist forests, sometimes intermixed with *Barbosella gardneri*. Both are minute and long-repent, appearing vegetatively similar except that the leaves of *B. miersii* are about half the size of those of *B. gardneri*. With proper cultivation, great masses of tangled rhizomes produce a profusion of the minute flowers. The sepals are microscopically ciliate

and about one and a half millimeters long. The even smaller petals are microscopically erose. The lip is ovoid and obtuse with revolute sides.

First described in *Pleurothallis* by Lindley, transferred to *Restrepia* by Reichenbach, transferred to *Barbosella* by Schlechter, and transferred to *Barbrodria* by Luer, this species is unique in the Pleurothallidinae. Although superficially it appears convincingly to belong to *Barbosella*, the morphology of the lip and column are so foreign to that genus, that isolation in a unispecific genus seems indicated, in spite of DNA studies that place it beside *Barbosella*. Future work based on morphological and molecular data, however, may change the placement of this peculiar species within the Pleurothallidinae.

The lip of *B. miersii* is hinged to the tip of the column-foot, whereas in all species of *Barbosella* (except *B. trilobata*) the lip is connected to the column-foot with a "ball-and-socket" articulation. Subgenus *Crocodeilanthe* of *Pleurothallis*, as well as a few exceptional species (e.g., *P. alainii* Dod and *P. masdevalliopsis* Luer) scattered in other infrageneric taxa of *Pleurothallis*, are characterized by such a joint. The sides of the blade of the lip of *B. miersii* are revolute below the middle, thereby forming a cavity on the underside. The lip of *Barbosella trilobata* is simply hinged to the tip of the column-foot, but the semiterete, hooded column with ventral anther and stigma is similar to that of the other species of the genus.

The column of *Barbrodria miersii* is short, terete, wingless, and broadest above the middle with an exposed, apical anther and protruding rostellum, not ventral as in all other species of *Barbosella*. The stigma of *Barbrodria miersii* is located on the undersurface of the rostellar flap, the floor of the cavity of the anther-bed.

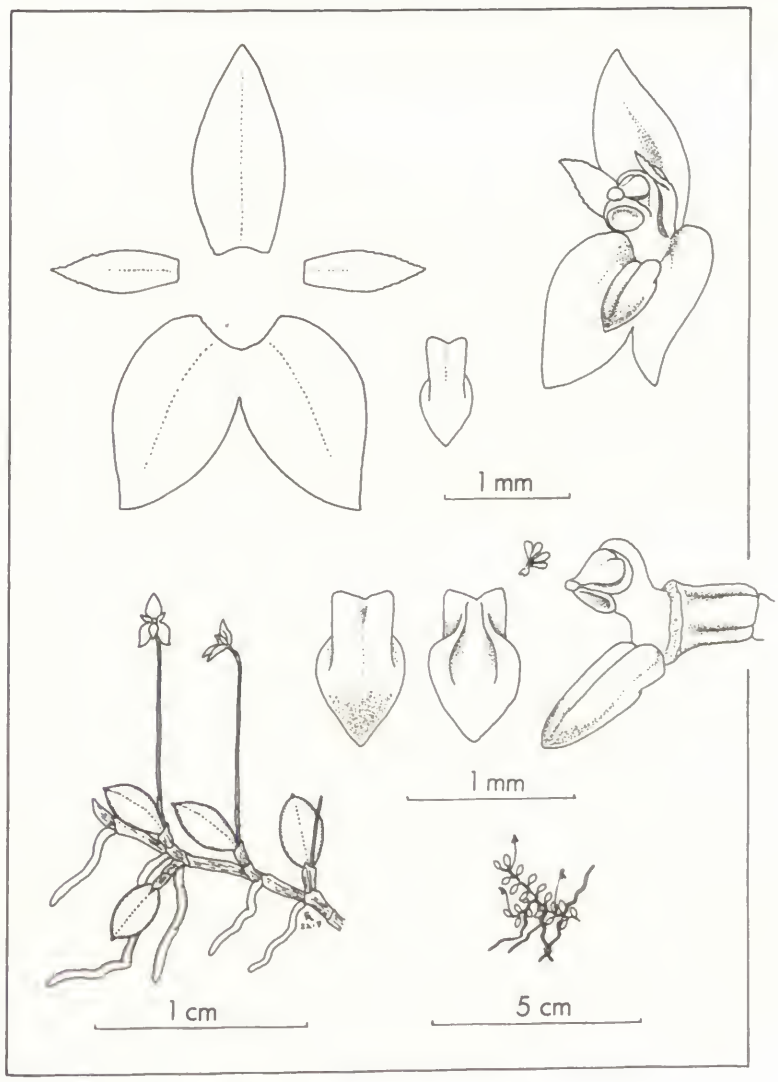


Fig. 25. Barbrodria miersii

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SYSTEMATICS OF *PLEUROTHALLIS* SUBGENUS *ANTILLA*

ABSTRACT

The subgenus *Antilla* Luer of *Pleurothallis* R.Br. is proposed. A key to the species is given, and each species is described and illustrated with a black and white drawing.

New taxa:
Pleurothallis subgen. **Antilla** Luer, subgen. nov.

A small number of closely allied species endemic to the Greater Antilles comprises this proposed subgenus of *Pleurothallis*. Morphologically, they seem allied to the large subgenus *Acianthera* that occurs in most subtropical regions of the neotropics including the Greater Antilles.

Two Jamaican collections by Swartz in the eighteenth century were the first of this subgenus to be described. They were published by Swartz in 1788 in the genus *Epidendrum*. Two Cuban collections by Wright in the nineteenth century were the next species attributable to this taxon to be described. Lindley described them in 1858 in *Pleurothallis*. Seven additional species from Hispaniola and Puerto Rico have been described. No closely related or similar species has been recognized in either Central or South America.

SUBGENUS *ANTILLA*

Pleurothallis subgen. **Antilla** Luer, subgen. nov.

Type: *Pleurothallis trichophora* Lindl., Ann. Mag. Nat. Hist. ser. 3, 1: 326, 1858.

Ety.: Named for the *Antilles* where the subgenus is endemic.

Folia elliptica acuta sessilia, inflorescentia laxe racemiflora, sepala lateralia in synsepalum plus minusve connata, labellum unguiculatum.

Plants perennial, small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect to horizontal, short to elongated, non-pseudobulbous, unifoliate, enclosed by a tubular, glabrous sheath and other sheaths at the base. **Leaf** erect to horizontal or pendent, coriaceous, sometimes denticulate or erose, more or less elliptical with the apex acute, shallowly notched, the base narrowly cuneate into the sessile base. **Inflorescence** a flexible, loosely flowered raceme, arching to pendent, the flowers usually resupinate, borne by a slender peduncle that emerges with a small spathe at the base of the leaf; floral bracts infundibular or tubular; pedicels longer or shorter than the floral bract; ovary smooth, trivalvate; **sepals** membranous, glabrous, the dorsal ovate, acute, concave, nearly free from the laterals, the lateral sepals connate to a shortly bifid tip; **petals** narrow, entire to microscopically serrate, acute; **lip** conspicuously unguiculate, the blade bicallous, more or less lobed above the claw, obtuse to rounded at the apex, hinged to the tip of the column-foot; **column** proportionately large, broadly winged above the middle, the anther, rostellum and stigma ventral, pollinia 2, the base of the column prolonged into a column-foot.

Subgenus *Antilla* is characterized by a ramicaul shorter than, to about as long as the leaf. The leaf is elliptical, acute and sessile. In common with several other Antillean genera (*Epidendrum, Lepanthes, Lepanthopsis*), genes for denticulate margins have found their way into a few species. The inflorescence is a loose, flexible, more or less flexuous raceme, emerging with a small spathe at the base of the leaf. The plants and the racemes are often pendent. The flowers are produced simultaneously or successively. The dorsal sepal is essentially free, and the laterals are connate, or lightly adherent, into a minutely bifid synsepal; the petals are small, acute and sometimes minutely serrulate; and the lip is small and often conspicuously unguiculate. The blade is more or less lobed and bicallous. The column is proportionately large and winged.

BINOMIALS PUBLISHED IN *PLRUROTHALLIS* ATTRIBUTED TO SUBGENUS *ANTILLA*

P. alpestris (Sw.) Lindl. .....Fig. 1.
P. appendiculata Cogn. .....Fig. 2.
P. bahorucensis Luer .....Fig. 3.
P. erosa Urb. .....Fig. 4.
P. laxa (Sw.) Lindl. .....Fig. 5.
P. nigroannulata Cogn. = **P. laxa**
P. parvula Lindl. .....Fig. 6, 7.
P. pendens Dod .....Fig. 8.
P. platyglottis L.O.Williams = **P. parvula**
P. privigna Luer .....Fig. 9.
P. prostrata Lindl. .....Fig. 10.
P. quisqueyana Dod.....Fig. 11.
P. trichophora Lindl. .....Fig. 12.

KEY TO THE SPECIES OF SUBGENUS *ANTILLA*

1 Leaves with margins minutely denticulate to erose.....2
1' Leaves with margins entire 6

2 Sepals more than 15 mm long.....*P. erosa*
2' Sepals less than 10 mm long.....3

3 Ramicaul 2-4 mm long; leaf verrucose.....*P. privigna*
3' Ramicaul 1-4 cm long; leaf not verrucose.....4

4 Lip with the claw bilobed .....*P. parvula*
4' Lip with the claw narrowly long-cuneate.....5

5 Leaves narrowly linear; lip verrucose with tall calli.....*P. bahorucensis*
5' Leaves elliptical; lip not verrucose with tall calli.....*P. quisqueyana*

6 Raceme pendent 7
6' Raceme erect to suberect.....8

7 Raceme markedly flexuous; lip with claw transversely callous.....
.....*P. appendiculata*
7' Raceme not flexuous; lip with claw narrowly cuneate.....*P. pendens*

8 Raceme flexuous with conspicuous floral bracts.....*P. prostrata*
8' Raceme not flexuous 9

9 Raceme subcongested, with flowers 3-4 mm apart; ovary long-papillose.....
.....*P. alpestris*
9' Raceme lax, with flowers 5-10 mm apart 10

10 Ovary short-papillose; lip with claw bilobed.....*P. laxa*
10' Ovary smooth; lip with claw not bilobed.....*P. trichophora*

Pleurothallis alpestris (Sw.) Lindl., Gen. Sp. Orch. Pl. 7, 1830.

Bas.: *Epidendrum alpestre* Sw., Prodr. 125, 1788.

Ety.: From the Latin *alpestris*, "of high mountains," referring to the habitat.

Syn.: *Dendrobium alpestre* (Sw.) Sw., Nov. Act. Upsala 6: 84, 1799.

Syn.: *Humboldtia alpestris* (Sw.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Plant small to medium in size, epiphytic, caespitose, roots slender. Ramicauls slender, erect, 1.5-6 cm long, enclosed by a loose, tubular sheath below the middle and 2 shorter sheaths at the base. **Leaf** erect, coriaceous, elliptical or elliptical-ovate, acute, sessile, 1.5-5 cm long, 0.8-1.7 cm wide, cuneate at the base. **Inflorescence** 1-2 lax, distichous, successively several-flowered racemes, 3-8 cm long including the petiole ca. 2 cm long, subtended by a spathe 3-5 mm long at the base of the leaf; flowers light yellow, 5-7 mm apart, more or less erect; floral bracts tubular, 3 mm long; pedicels 1.25 mm long; ovary long-papillose, 1.25 mm long; **sepals** glabrous, fleshy, subcarinate, the dorsal sepal narrowly elliptical, subacute, apiculate, 6-7.5 mm long, 2.8 mm wide, 3-veined, the lateral sepals connate into an elliptical-oblong, concave synsepal, 6.5-8 mm long, 3-3.5 mm wide; **petals** translucent, narrowly obovate, acute, 2.4 mm long, 0.8 mm wide, 1-veined; **lip** fleshy, oblong-trilobed, unguiculate, 2 mm long, 1.2 mm wide, the apex rounded with minutely irregular margin, the sides with a rounded lobe below the middle, the disc shallowly channeled between a pair of low calli near the middle, the claw with a pair of small lobules at the base, hinged to the undersurface of the tip of the column-foot; **column** broadly winged, denticulate and lobed at the apex, 1.5 mm long, the anther, rostellum and stigma ventral, the foot 0.75 mm long with the apex rounded.

JAMAICA: Without locality, "high mountains of southern Jamaica," *O. Swartz s.n.* (Holotype of *Epidendrum alpestre*: BM; Isotypes: C, W). Without locality, *A.T. Syme & D. Morris 29* (AMES, NY, W); Blue Mountains, alt. 4,000 ft., Nov. 1885, *D. Harris s.n.* (K). **Middlesex**: St. Ann, Holly Mount, Mt. Diablo, alt. 2,600 m, 17 Feb. 1905, *W. Harris 8908* (AMES, BM, NY); near Cinchona, alt. 4,000 ft., 7 Apr. 1908, *W. Harris 10502* (AMES, BM, K, NY); Mt. Diablo, Feb. 1916, *H.N. Ridley s.n.* (K); Mt. Diablo, alt. 2,500 ft., 14 Feb. 1938, *F.W. Hunnewell 15248* (AMES); near Cinchona, alt. 4,000 ft., 7 Apr. 1908, *W. Harris 10502* (AMES, K, US); epiphytic on the highest mountains of Silver Hill, alt. 1300 m, *W. Harris 7829* (BR, UCWI). St. Thomas: crest of Gossamer Peak, alt. 800-900 m, 16 June 1926, *W.R. Maxon 9237* (US); ridge east of Cuna Cuna Gap, alt. 750-840 m, 22 June 1926, *W.R. Maxon 9406* (AMES, NY, US). St. Ann: road to Hollymount, alt. 2,400 ft., 26 Jan. 1964, *C.D. Adams 12691* (M).

In 1788, Swartz published simultaneously *Epidendrum alpestre* and *E. laxum*, both from the same locality, the high mountains of southern Jamaica. Lindley transferred them to *Pleurothallis* in 1830.

Pleurothallis alpestris and *P. laxa* are very closely allied, and could be merely variations of one species. Swartz made no clear distinction. Fawcett and Rendle distinguished *P. alpestris* by yellowish green, shortly acute sepals with the laterals connate nearly to the apex. They distinguished *P. laxa* by deep purple, narrowly acute sepals. I have found variations in color, and the lateral sepals connate or free in flowers of specimens attributed to both species. I have also found the lips variable without clear differences. However, there are two distinctions. The flowers in the raceme of *P. alpestris* are three to four millimeters apart, while in *P. laxa*, they are five to seven millimeters apart. Second, the ovary of *P. alpestris* is very short, about one and a half millimeters long, and it is long-papillose (described by Swartz as *aculeatae*), becoming fringed on the ribs of the capsule. The ovary of *P. laxa* is about three millimeters long, and it is minutely papillose (described by Swartz as *glabra*). Heretofore, *P. nigroannulata* had been considered by authors to be a synonym of *P. alpestris*, but because Cogniaux described the ribs of the capsule as *leviter verruculosis* (slightly verrucose), I have placed it in the synonymy of *P. laxa*. There is probably some confusion in the citations of localities of *P. alpestris* and *P. laxa*. The distributions of both concepts should be consulted.

Pleurothallis appendiculata Cogn., Symb. Antill. 7: 174, 1912.

Ety.: From the Latin *appendiculatus*, "appendiculate," without a clue to its reference,

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 2-5 cm long, with a loose, tubular sheath near the middle and another 1-2 sheaths at the base. **Leaf** erect, coriaceous, elliptical, acute, 2.5-5 cm long, 0.8-1.5 cm wide, cuneate into the subsessile base. **Inflorescence** an arching, pendent, markedly flexuous, nearly simultaneously, 2- to 4-flowered raceme, 5-7 cm long, including the peduncle 3-4 cm long, subtended by a spathe 2-3 mm long at the base of the leaf; floral bracts oblique, 5 mm long; pedicels 3.5 mm long; ovary 2 mm long; **sepals** red-purple, membranous, the dorsal sepal narrowly obovate, acute, 12.5 mm long, 2.5 mm wide, 3-veined, the lateral sepals connate into an ovate, concave, acute, minutely biapiculate lamina, 12 mm long, 6 mm wide expanded, 8-veined; **petals** red-purple, narrowly elliptical-subfalcate, acute, acuminate, 6 mm long, 1.25 mm wide, 1-veined, with the margins cellular; **lip** purple, oblong-trilobed, 3.2 mm long, 2.4 mm wide, with erect, rounded lobes near the middle, and with the margins above the middle recurved, the apex rounded, the disc featureless, with a transverse callus above the base, narrowly hinged to the column-foot; **column** with broad, rounded wings on the apical half, denticulate at the apex, slender below the middle, 4 mm long, the foot thick, 2 mm long, the anther, rostellum and stigma ventral.

DOMINICAN REPUBLIC: shady forest near Constanza, alt. 1400 m, Apr., *H. von Türckheim 3233* (Holotype: BR). **Samaná**: Peninsula de Samaná, vicinity of Laguna, Pilón de Azúcar, alt. 100-500 m, 12 May 1922, *W.L. Abbott 2362* (US); slopes of Pan de Azúcar, alt. 400 m, 4 Apr. 1930, *E.L. Ekman 14865* (AMES, S). Cordillera Yaroa, alt. 850 m, 11 May 1968, *A.H. Liogier 11220a* (NY, US); Cordillera Septentrional, Carlos Diaz, alt. 800-950 m, 19 Sept. 1968, *A.H. Liogier 12714* (AMES, NY, US). Cordillera de Yaroa, toward Arroyo del Toro, alt. 850-900 m, 29 Aug. 1968, *A.H. Liogier 12382* (NY). **Puerto Plata**: Loma Isabel de Torres, alt. 700-800 m, 25 Mar. 1969, *A.H. Liogier 14572* (NY); Cordillera Septentrional, Loma del Puerto, alt. 700-800 m, 4 June 1969, *A.H. Liogier 15558* (NY). Without locality, obtained from M. Kindlmann, cultivated by the Jesups in Bristol, CT, 29 Sept. 1991, *C. Luer 15457* (MO).
HAITI: Mt. Maleuvre to Mt. Piment, alt. 2,350 ft., 24 July 1905, *G.V. Nash & N. Taylor 1186* (NY); Riviere Glace, alt. 750 m, 6 Aug. 1945, *L.R. Holdridge 2204* (AMES); Formón, alt. 1600 m, Jan. 1983, *D. Dod 1891* (MO).
PUERTO RICO: Monte Alegrillo, 11 Nov. 1913, *F.L. Stevens 4493* (NY); Mountain Forest above Maricao, 30 Mar. 1935, *G.W. Bachman 1* (NY); San Germán, Maricao State Forest, Barrio Caín Alto, E of Campamento Buena Vista, alt. 780-800 m, 4 July 1965, *R. O. Woodbury s.n.* (SJ). Without locality, 25 Mar. 1946, *H.F. Winters s.n.* (AMES).
CUBA: Granma: Buey Arriba, alrededores del Poblado Barrio Nuevo, alt. 1400 m, 10 May 1988, *A. Alvarez et al. s.n.* (HAJB).

This species is one that is immediately recognizable, there being no similar relatives. It is the only member of the subgenus to occur on three of the large islands. The small, elliptical leaves, acute at both ends, are borne by equally long ramicauls. Two to three large, dark red, gaping flowers are often borne simultaneously in a pendent, loose, remarkedly flexuous raceme. The dorsal sepal is narrowly obovate, the synsepal is ovate and concave toward the base, and the petals are elliptical-subfalcate. The lip is irregularly oblong with erect, rounded lobes below the middle with deflexed, rounded margins above the middle; the apex is rounded, and a transverse callus is present above the base.

Pleurothallis bahorucensis Luer, Lindleyana 14: 108, 1999.

Ety.: Named for the Sierra de Bahoruco where the species was collected.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, presumably erect, 10-25 mm long, enclosed below the middle with 2 tubular sheaths. **Leaf** erect, coriaceous, with the margins minutely crenulate-denticulate, narrowly linear-oblong, acute, sessile, 12-20 mm long, 3-4 mm wide, the base narrowly cuneate. **Inflorescence** an arching to pendent, lax, distichous, flexuous, successively several-flowered raceme, 3-6 cm long including the slender peduncle 1-1.5 cm long, borne with a spathe 2-3 mm long, at the base of the leaf; floral bracts oblique, dilated, acute, 4 mm long; pedicels 4 mm long; ovary 5 mm long, minutely papillose; **sepals** color not noted, glabrous, the dorsal sepal narrowly ovate, acute, subcarinate, concave, 7.5 mm long, 1.75 mm wide, 3-veined, free from the lateral sepals, the lateral sepals connate into an ovate, bicarinate lamina, 5.5 mm long, 4 mm wide, 6-veined, with the apex acute, bifid for 1 mm, with the medial third of each lateral sepal convex for the middle third; **petals** membranous, narrowly ovate, acute, attenuate above the middle, 4.75 mm long, 0.75 mm wide, 1-veined; **lip**

ovate, unguiculate, the blade 2 mm long, 1.5 mm wide, with the apex broadly rounded, minutely verrucose, with microscopically erose margins, the base of the blade with erect, rounded, lobe-like margins, the disc shallowly sulcate between a pair of tall, verrucose carinae on the middle third, the claw narrowly triangular, broad above, tapering to a very narrow attachment, 1 mm long, hinged to the undersurface of the base of the column-foot; **column** winged above the middle, toothed at the tip, slender below the middle, proportionately large, 3.5 mm long, the anther and stigma ventral, the foot thick, 1 mm long.

DOMINICAN REPUBLIC: **Barahona**: Sierra de Bahoruco, Pueblo Viejo above Puerto Escondido, alt. 1850 m, 19 Feb. 1969, *A.H. Liogier 14068* (Holotype: AMES), C. Luer illustr. 18845.

This species is known only from the original collection by Liogier in 1969. It is similar to *P. pendens*, which occurs in the same vicinity. *Pleurothallis bahorucensis* differs from *P. pendens* in several respects. The leaves are narrowly oblong and less than four millimeters wide; the raceme is shorter and flexuous with the flowers more closely spaced; the ovaries are twice longer; the basal margins of the blade of the lip are erect, rounded and lobe-like; the carinae of the disc are tall; and the column is disproportionately large.

Pleurothallis erosa Urb., Repert. Spec. Nov. Regni Veg. 15: 104, 1917.

Ety.: From the Latin *erosus*, "erose," referring to the leaves.

Plant small, epiphytic, caespitose, possibly pendent; roots slender. Ramicauls slender, 1.5-4.5 cm long, mostly enclosed with 3 tubular sheaths, the uppermost the longest. **Leaf** erect in relation to the ramicaul, coriaceous, with the margins minutely crenulate, elliptical, acute, sessile, 2-3.7 cm long, 0.7-1.2 cm wide, the base cuneate. **Inflorescence** a loose, flexuous, distichous, simultaneously few-flowered raceme, 3-4.5 cm long including the slender peduncle 1.5-2 cm long, borne with a spathe ca. 3 mm long, at the base of the leaf; floral bracts oblique, dilated, 3-4 mm long; pedicels 2-2.5 mm long; ovary 1 mm long; **sepals** light yellow-green, glabrous, the dorsal sepal narrowly linear, subcarinate, acute, 16-17 mm long, 1.6 mm wide, 3-veined toward the base, free from the lateral sepals, the lateral sepals marked with purple, connate into an oblong, shortly biapiculate, bicarinate lamina, 17-18 mm long, 5 mm wide, 6-veined, with the tips acute, free for 1 mm, longitudinally convex for the entire length, concave externally between the carinae; **petals** white, narrowly ovate, acute, minutely serrate, 5-6 mm long, 1 mm wide, 1-veined; **lip** 3-lobed, unguiculate, 3 mm long including the claw, 2 mm wide, the blade ovate, obtuse, with the margins long-fimbriate, with thin, auriculate lobes above the claw, the disc shallowly sulcate between a pair of low, central carinae, the claw broad, 1 mm long, hinged to the tip of the column; **column** stout, semiterete, 3.5 mm long, conspicuously winged above the middle, the anther and stigma ventral, the foot thick, 1 mm long.

DOMINICAN REPUBLIC: **Barahona**: near Firme Noche Buena, alt. 1500 m, Sept. 1911, *J. Fuertes 1211* (Holotype: AMES). **Azua**: Cordillera de Neyba, San Juán, Loma de Jayaco, alt. 1425 m, 3 Nov. 1929, *E.L. Ekman 13487* (AMES, S), C. Luer illustr. 18842. **Jarabacoa**: gorge of Arroyo de la Sal, near Jimenoa Dam, alt. 900 m, 19 June 1968, *A.H. Liogier 11740* (NY, US); Arroyo Antonzape Malo, south of Mata Grande, alt. 1100 m, 5 June 1968, *A.H. Liogier 11577* (NY); banks of Antonzape rivers, south of Mata Grande, alt. 850 m, *A.H. Liogier 12298* (NY); Bao Valley, from La Guácara to Bao, alt. 1200 m, 1-7 Oct. 1968, *A.H. Liogier 12927* (NY); Guácara River, Bao Valley, south of Mata Grande, alt. 1300 m, 5-9 Nov. 1968, *A.H. Liogier 13417* (AMES, NY); Ciénaga de Manabao, alt. 1000 m, *A.H. Liogier 17166* (NY). La Filipina, Finca Sucesión, alt. 800 m, 3 Jan. 1977, *A.H. Liogier 26157* (JBSD, NY). Las Abejas, Cabo Rojo, collected by D. Dod, Oct. 1968, *A.H. Liogier 13511* (NY).
HAITI: Massif de la Selle, Morne Brouet, alt. 1725, 26 July 1924, ?*E.L. Ekman H-1132* (K, S); vicinity of Mission, Fonds Varettes, alt. 1000 m, 17 Apr. 1920, *E.C. Leonard 3899* (AMES, US).

This handsome species is locally common in forests along rivers on the island of Hispaniola. The collections seen are mounted as if erect, but I suspect that the plant is pendent. The leaves are elliptical and sessile with minutely crenulate margins. The loosely few-flowered inflorescence is about twice as long and flexuous. I suspect that it is pendent, as is the case in related species, which would place the lip lowermost in the flower. The sepals are more than a centimeter and a half long. The dorsal sepal is narrowly linear; the laterals are connate into an oblong, biapiculate lamina with a longitudinally convex center half that is concave externally between carinae. The petals are narrowly acute and minutely serrate. The lip is small and deeply fringed above a broad claw.

Pleurothallis laxa (Sw.) Lindl., Gen. Spec. Orch. 7, 1830.

Bas.: *Epidendrum laxum* Sw., Prodr. 125, 1788.

Ety.: From the Latin *laxus*, "loose, lax," referring to the inflorescence.

Syn.: *Dendrobium laxum* (Sw.) Sw., Nov. Act. Upsala 6: 84, 1799.

Syn.: *Humboldtia laxa* (Sw.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Pleurothallis nigroannulata* Cogn., Repert. Spec. Nov. Regni Veg. 6: 306, 1909, in part.

Ety.: From the Latin *nigroannulatus*, referring to black nodes he noted on the ramicaul.

Plant small to medium in size, epiphytic, caespitose, roots slender. Ramicauls slender, erect, 2-7 cm long, enclosed by a close, tubular sheath below the middle and 2 shorter sheaths at the base. **Leaf** erect, coriaceous, elliptical, acute, sessile, 2.5-5 cm long, 1-1.5 cm wide, cuneate at the base. **Inflorescence** 1-2 lax, distichous, successively few-flowered racemes, 4-6 cm long including the petiole 2 cm long, subtended by a spathe ca. 3 mm long at the base of the leaf; flowers purple, 3-5 mm apart, more or less erect; floral bracts tubular, microscopically cellular-glandular, 2-3.5 mm long; pedicels 1 mm long; ovary minutely papillose, 3 mm long; **sepals** glabrous, fleshy, subcarinate, the dorsal sepal linear-oblong, acute, 6.5-9 mm long, 1.5 mm wide, 3-veined, the lateral sepals lightly connate, but separate easily, 6-8.5 mm long, 4 mm wide together; **petals** translucent, narrowly ovate, acute, minutely serrulate, 2.5-4 mm long, 0.75 mm wide, 1-veined; **lip** fleshy, oblong-lobulate, unguiculate, the blade 1-2 mm long, 1-1.25 mm wide, the claw 1 mm long, the apex rounded with slightly wavy margins, the sides irregular and minutely erose, the disc shallowly channeled between a pair of low calli below the middle, the claw with a pair of small lobes above the very narrow base, hinged to the undersurface of the tip of the column-foot; **column** broadly winged, denticulate and lobed at the apex, 2.5 mm long, the anther, rostellum and stigma ventral, the foot 0.75 mm long with the apex rounded.

JAMAICA: Without locality, "high mountains of southern Jamaica," *O. Swartz s.n.* (Holotype of *Epidendrum laxum*: BM; Isotypes: AMES, M, W); Woodcutters Gap, alt. 1300 m, 6 Dec. 1898, *W. Harris 7536* (holotype of *P. nigroannulata*: UCWI; isotype: BR); same data, *W. Harris 7554* (UCWI); John Crow Peak, 18 Aug. 1902, *W. Fawcett s.n.* (BM); without locality, Nov. 1881, *D. Morris 170* (K, W); Blue Mountains, alt. 5,500 ft., Nov. 1885, *A.T. Syme & D. Morris 170* (K, NY, W), C. Luer illustr. 18809; 21 Oct. 1885, *A.T. Syme & D. Morris 207* (NY); vicinity of Cinchona, 2-10 Sept. 1906, *N.L. Britton 287* (NY); Mossman's Peak, alt. 1700-1925 m, 2 July 1926, *W.R. Maxon 9689* (AMES, US).

This species is endemic at the higher altitudes of Jamaica. It was collected by Swartz along with *P. alpestris* and published in *Epidendrum* in 1788. The two species are closely allied, differing only in minor details.

Pleurothallis laxa is distinguished by a slender ramicaul and a shorter, acute, elliptical, sessile leaf. The successively flowered inflorescence reaches about as long as or longer than the leaf. The dark purple flowers are held more or less erect, in a raceme looser than that of *P. alpestris*. The sepals are narrow, acute, fleshy and subcarinate. The petals are narrow and minutely serrate. The lip is unguiculate, lobed above the claw, and with an obscure, minutely fimbriate lobe near the middle on either side. The claw is minutely lobed above the base.

Pleurothallis parvula Ames & C.Schweinf., Sched. Orch. 8: 30, 1925.

Ety.: From the Greek *parvulus*, "small," referring to the habit.

Syn.: *Pleurothallis platyglottis* L.O.Williams, Ceiba 1: 228, 1951.

Ety.: From the Greek *platyglottis*, "a broad tongue," referring to the labellum.

Plant small, epiphytic, caespitose, possibly pendent; roots slender. Ramicauls slender, 1-5 cm long, enclosed below the middle with 3 tubular sheaths, the uppermost the longest. **Leaf** erect in relation to the ramicaul, coriaceous, with the margins minutely crenulate, narrowly elliptical, acute, sessile, 1.5-4.5 cm long, 0.3-0.6 cm wide, the base cuneate. **Inflorescence** a loose, subflexuous, distichous, simultaneously few-flowered raceme, 3-5 cm long including the slender peduncle 1.5-2 cm long, borne with a spathe 4-5 mm long, at the base of the leaf; floral bracts oblique, dilated, 3-6 mm long; pedicels 2-2.5 mm long; ovary 1 mm long, minutely papillose; **sepals** greenish brown with brown veins, glabrous, the dorsal sepal narrowly linear-ovate, subcarinate, acute, apiculate, 9 mm long, 2 mm wide, 3-veined, free from the lateral sepals, the lateral sepals connate into an ovate, shortly biapiculate, bicarinate lamina, 8 mm long, 4 mm wide, 6-veined, with the tips acute, free for 1 mm; **petals** white, membranous, narrowly

ovate, acute, with microscopically erose margins, 4.5 mm long, 1.25 mm wide, 1-veined; **lip** lobulate, unguiculate, the blade ovate, subquadrate with undulating, minutely erose margins, creating a pair of lobules on each side, the apex broadly rounded, the disc shallowly sulcate between a pair of low carinae, the claw broad above with a pair of erect lobes, tapering to a very narrow attachment, 1.5 mm long, hinged to the undersurface of the base of the column; **column** broadly winged above the middle, slender below the middle, 2.75 mm long, the anther and stigma ventral, the foot thick, 1 mm long.

CUBA: Oriente, Sierra Maestra, Pico Turquino, Alta Maestra, July 1922, *Br. Leon 10790* (Holotype: not at AMES, K or NY; Isotype: HAC); Firmeza to Gran Piedra, 3 Mar. 1911, *J.A. Schafer 8963* (AMES, NY); Pico Turquino, 31 July 1935, *J.T. Roig, J. Acuña & Bucher 6639* (HAC-Roig, NY).
HAITI: Guimbi Galata, Mornes des Commisssaires, alt. 1800 m, 21 June 1942, *L.R. Holdrige 1287* (holotype of *P. platyglottis*: AMES); Morne des Commissaires, alt. 5,800 ft., 8 Aug. 1943, *J.T. Curtiss 55* (AMES); Morne des Commissaires, Oviani, alt. 5,800 ft., 27 July 1944, *J.T. Curtiss 4* (AMES), C. Luer illustr. 18846.
DOMINICAN REPUBLIC: Sierra del Baroruco, Pedernales, above Los Arroyos, alt. 1600 m, 18-20 Feb. 1969, *A.H. Liogier 13984* (AMES, NY), C. Luer illustr. 19032; Asserradero, above El Aguacate, on International Highway, Duvergé, alt. 1200 m, Mar. 1971, *D.D. Dod s.n.* (AMES). Las Abejas, Cabo Rojo, collected by D. Dod, Oct. 1968, *A.H. Liogier 13511* (NY). Sapotén, Duvergé, alt. 1500 m, 4 Jan. 1972, *A.H. Liogier 18330* (NY). Sierra de Bahoruco, Pueblo Viejo, above Puerto Escondido, alt. 1850 m, 19 Feb. 1969, *A.H. Liogier 14068* (NY).

Pleurothallis parvula was described from a collection by brother León in 1922 from the southern, coastal mountains of Cuba where it apparently is not frequent. It is locally common in the Dominican Republic. A collection by Holdrige from Haiti was described as *P. platyglottis*.

This species is characterized by a small habit with narrowly elliptical leaves, more or less as long as the ramicaul, and with minutely erose-undulate margins. A loose, subflexuous, few-flowered raceme of purple flowers surpasses the leaf. I suspect that the plant and raceme are pendent as are some close relatives. The dorsal sepal and synsepal are fleshy and apiculate; the petals are membranous and narrowly acute; and the proportionately small lip resembles the lip of *Dryadella*, as noted by Williams in his description of *P. platyglossa*. The blade of the unguiculate lip is subquadrate, lobulate and undulate, sometimes serrate. The long claw is bilobulate above the middle and narrowly attenuate to the attachment with the base of the lip. These lobules are noted in the drawing that accompanies the description of *P. parvula*.

Pleurothallis pendens Dod, Moscosoa 1(2): 49, 1977.

Ety.: From the Latin *pendens*, "pendent," referring to the inflorescence.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, more or less held horizontally, 5-25 mm long, enclosed below the middle with 2 loose, tubular sheaths. **Leaf** erect in relation to the ramicaul, coriaceous, with the margins minutely crenulate-denticulate, narrowly elliptical, acute, sessile, 10-20 mm long, 5-10 mm wide, the base cuneate. **Inflorescence** a pendent, distichous, non-flexuous, distantly and successively several-flowered raceme, 8-15 cm long including the slender peduncle 3-5 cm long, borne with a spathe 3-4 mm long, at the base of the leaf; floral bracts oblique, dilated, acute, 3-4 mm long; pedicels 5-6 mm long; ovary 2 mm long, minutely papillose; **sepals** color not noted, glabrous, the dorsal sepal narrowly linear-ovate, acute, subcarinate, curved, concave, 8 mm long, 1.8 mm wide, 3-veined, free from the lateral sepals, the lateral sepals connate into an ovate, bicarinate lamina, 6.25 mm long, 3.5 mm wide, 4-veined, with the apex acute, bifid for 1.5 mm, with the medial third of each lateral sepal longitudinally convex; **petals** membranous, narrowly ovate, acute, attenuate above the middle, 4.5 mm long, 0.6 mm wide, 1-veined; **lip** ovate, unguiculate, the blade 1.5 mm long, 1.3 mm wide, with the apex broadly rounded, with microscopically erose margins, the base of the blade with erect, obtuse sides, the disc shallowly sulcate between a pair of verrucose carinae on the middle third, the claw narrowly triangular, broad above, tapering to a very narrow attachment, 1 mm long, hinged to the undersurface of the base of the column-foot; **column** winged above the middle, lobed at the apex, slender below the middle, 2.5 mm long, the anther and stigma ventral, the foot thick, 1 mm long.

DOMINICAN REPUBLIC: **Barahona**: Puerto Escondito, Pueblo Viejo, Duvergé, Camp Jota, alt. 1750 m, 27 Mar. 1975, *D.D. Dod 515* (Holotype: SDM; Isotypes: AMES, SEL), C. Luer illustr. 19036. **Constanza**: Loma Redonda, Ciénaga, alt. 1650-1950 m, 23 Sept. 1969, *A.H. Liogier 16024* (AMES, NY); Loma La Pena, alt. 1650 m, 3 Dec. 1977, *D.D. Dod 608* (NY, US).

This species, endemic in the mountains of western Dominican Republic, is closely allied to *P. quisqueana* from the mountains of central Dominican Republic. The flowers of the two concepts are very similar, but the former is distinguished from the latter by the habit producing single flowers successively in a flaccid, non-flexuous, pendent raceme of distantly spaced flowers. Sterile specimens, or specimens in fruit without known locality, are distinguished with uncertainty.

Pleurothallis privigna Luer, Lindleyana 14: 118, 1999.

Ety.: From the Latin *privigna*, "a stepdaughter," referring to an imagined relationship with *P. trichophora*.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 2-4 mm long, enclosed by a loose, tubular sheath. **Leaves** thickly coriaceous, elliptical, subacute, 7-11 mm long, 3-4 mm wide, verrucose, with denticulate-undulate margins, cuneate below into a petiole less than 1 mm long. **Inflorescence** a 2-flowered, lax raceme of more or less simultaneous flowers, without color note, 5 mm apart, borne by a slender peduncle ca. 7 mm long, from the base of the leaf with a spathe 2-3.5 mm long; floral bract 3-3.5 mm long; pedicel 2-2.5 mm long; ovary 2-3 mm long; **sepals** fleshy, subcarinate, glabrous, microscopically ciliate, the dorsal sepal narrowly oblong, ovate, acute, concave, 6-7 mm long, 2 mm wide, lateral veins not visible, the lateral sepals connate to the apex into an ovate synsepal, 5.5-6 mm long, 3 mm wide, 6-veined, forming a mentum with the column-foot; **petals** linear-arcuate, 3.75 mm long, oblong below the middle, 0.5 mm wide, 1-veined, very narrowly linear above the middle; **lip** very small, long-unguiculate, the blade subquadrate with recurved margins minutely erose, 0.8 mm long, 0.75 mm wide, the apex broadly rounded, the disc with a pair of low calli near the middle, the claw narrowly cuneiform, 1.25 mm long, hinged to the end of the column-foot; **column** broadly winged above the middle, denticulate at the apex, 2 mm long, the foot 1 mm long, with the anther apical and stigma ventral.

DOMINICAN REPUBLIC: **La Vega**: cloud forest, La Nevera, between Valle Nuevo and San José de Ocoa, alt. 2100 m, 18 Oct. 1965, *A.H. Liogier 13165* (Holotype: NY), C. Luer illustr. 18845.

This small species, known from one collection by brother Liogier, is apparently rare in Dominican Republic. It is characterized by small, thick, coarsely verrucose, elliptical leaves with denticulate-undulate margins. The ramicauls are less than four millimeters long. On the two specimens at hand the apparently erect peduncle seven millimeters long bears two flowers five millimeters apart. The flowers are very similar to those of the vegetatively much larger *P. trichophora*, but differ with arcuate petals that are narrowly oblong below the middle and very narrowly linear above the middle; and the lip is smaller with a proportionately longer claw.

Pleurothallis prostrata Lindl., Ann. Mag. Nat. Hist. ser. 3, 1: 327, 1858.

Ety.: From the Latin *prostratus*, "prostrate," referring to a mistaken idea of the habit.

Syn.: *Humboldtia prostrata* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 668, 1891.

Plant small, epiphytic, densely caespitose; roots slender. Ramicauls erect (not prostrate), slender, 1.5-3 cm long, the upper half enclosed with a loose, tubular sheath, and the lower half also enclosed by a similar sheath and 1-2 other sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, 2-5 cm long, 4-8 mm wide, with the base cuneate, sessile. **Inflorescence** a lax, distichous, flexuous, successively several-flowered raceme, 3-6 cm long including the peduncle 1.5-2 cm long, subtended by a spathe 5 mm long, at the base of the leaf; floral bracts conspicuous, inflated, 3-4 mm long, enclosing pedicel, ovary, and base of the dorsal sepal; pedicels 0.5 mm long, ovary cellular-papillose, 2 mm long and broad; **sepals** purple, glabrous, carinate, the dorsal sepal oblong-ovate, acute, apiculate, 9.5-10 mm long, 1.2 mm wide, 3-veined, the lateral sepals connate into an ovate, acute, biapiculate, concave synsepal, 8.5-9 mm long, 4.5 mm wide, 6-veined; **petals** translucent, elliptical, acute, 4.5 mm long, 1.5 mm wide, 1-veined; **lip** thick, oblong-subtrilobed, 3 mm long, 1.75 mm wide, the apex broadly rounded, minutely irregular, the lateral lobes below the middle, erect, rounded, the disc shallowly channeled between a pair of thick, parallel, subverrucose calli on the middle third, the base truncate, minutely lobed at the angles, hinged to the column-foot; **column** longitudinally winged, denticulate at the apex, 2.5 mm long, the foot 1 mm long, the anther, rostellum and stigma ventral.

CUBA: Oriente, 1856-57, *C. Wright 629* (Holotype: K; Isotypes: AMES, BR, W); Oriente, near Monte Verde, Jan.- July 1859, *C. Wright 1500* (AMES, BR, K, LE, P), C. Luer illustr. 18807; Oriente, near Potosí, 1861, *C. Wright s.n.* (W); Pico de La Bayamesa, alt, 4,900-5,200 ft., 16-19 July 1955, *R.E. Schultes et al. 613* (AMES); A serris Palenque entre el Río Carboni, wet forest, alt. 400-800 m, 2 May 1981, *H. Dietrich, L. Lippel & B. Mory s.n.* (HAJB).

Clumps of this species collected by Wright were mounted flattened out so that ramicauls are dispersed in all directions. This position gave Lindley the impression that the ramicauls were prostrate in the natural position. Another erroneous impression is the length of the pedicels, which Lindley thought were elongate. They are extremely short, completely enclosed by an inflated floral bract. The slender, flexuous, segments of the rachis give the false impression of being pedicels. The zig-zag raceme and relatively large, gaping flower are reminiscent of *P. appendiculata*. The thick lip suggests subgenus *Acianthera* with marginal lobes below the middle and a central pair of calli.

Pleurothallis quisqueyana Dod, Moscosoa 1: 51, 1977.

Ety.: Named for Quisqueya, the indigenous name for the country.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, 1-4 cm long, enclosed below the middle with 3 loose, tubular sheaths, the uppermost the longest. **Leaf** erect in relation to the ramicaul, coriaceous, with the margins minutely crenulate-denticulate, narrowly elliptical, acute, sessile, 2-4 cm long, 0.6-1.1 cm wide, the base cuneate. **Inflorescence** a pendent, loose, subflexuous, distichous, few-flowered raceme, 4-8 cm long including the slender peduncle 2-2.5 cm long, borne with a spathe 6-8 mm long, at the base of the leaf; floral bracts oblique, dilated, 5-6 mm long; pedicels 5-6 mm long; ovary 2 mm long, minutely papillose; **sepals** yellowish with red veins, glabrous, the dorsal sepal narrowly linear-ovate, subcarinate, thick above the middle, acute, 9 mm long, 2 mm wide, 3-veined, free from the lateral sepals, the lateral sepals lightly adherent into an ovate, bifid, bicarinate lamina, 8 mm long, 5 mm wide, 6-veined, with the tips acute, easily separable; **petals** white, membranous, narrowly ovate, acute, with microscopically erose margins, 4.5 mm long, 0.75 mm wide, 1-veined; **lip** suborbicular, unguiculate, the blade 1.25 mm long, 1.25 mm wide, with the apex broadly rounded, with microscopically erose margins, the base of the blade with a pair of small, rounded lobes, the disc shallowly sulcate between a pair of low, carinae, the claw narrowly triangular, broad above, tapering to a very narrow attachment, 1.25 mm long, hinged to the undersurface of the base of the column-foot; **column** broadly winged above the middle, toothed at the tip, slender below the middle, 2.25 mm long, the anther and stigma ventral, the foot thick, 1.5 mm long.

DOMINICAN REPUBLIC: **La Vega**: San José de Oca, la Horma Arriba, alt. 1820 m, 23 Jan. 1976, *D.D. Dod 590* (Holotype: SDM; Isotypes: AMES, NY, SEL, US), C. Luer illustr. 18847; La Nevera, between Valle Nuevo and San José de Ocoa, alt. 2100 m, 18 Oct. 1968, *A.H. Liogier 13162* (AMES, NY); same area, alt. 2100 m, 30 May 1969, *A.H. Liogier 15483* (AMES, NY).

This species is apparently endemic in the mountains of western Dominican Republic. The elliptical leaves are minutely denticulate. The raceme is a distantly few-flowered, subflexuous to straight raceme, often becoming more than twice as long as the leaf. The dorsal sepal and synsepal are fleshy and subcarinate, the laterals forming a conspicuous mentum with the column-foot; the petals are membranous and narrowly acute; and the proportionately very small blade of the lip is suborbicular and bicallous, and with an equally long, narrowly attenuate claw.

Pleurothallis quisqueana is allied to the Cuban *P. trichophora*. The latter is distinguished by more or less erect racemes; flowers without a prominent mentum; and a proportionately larger lip with a shorter, broader claw.

Pleurothallis quisqueana was distinguished by Dod from *P. pendens* by producing in succession two or three flowers simultaneously, while the more distantly spaced flowers of *P. pendens* are produced singly in an eventually longer raceme.

Pleurothallis trichophora Lindl., Ann. Mag. Nat. Hist. ser. 3, 1: 326, 1858.

Ety.: From the Greek *trichophoros*, "bearing a hair," referring to the peduncle.

Syn.: *Humboldtia trichophora* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 668, 1891.

Plant small to medium in size, epiphytic, caespitose, ?pendent; roots slender. Ramicauls slender, 1.5-4 cm long, mostly enclosed with a loose, tubular sheath, and 2-3 others at the base. **Leaf** erect in relation to the ramicaul, coriaceous, with the margins minutely crenulate-denticulate, narrowly elliptical, acute, sessile, 2-4 cm long, 0.7-1.3 cm wide, the base cuneate. **Inflorescence** a distantly flowered, more or less strict, secund, successively flowered raceme, 8-15 cm long including the slender peduncle 3-4 cm long, borne with a spathe 3-5 mm long, at the base of the leaf; floral bracts oblique, dilated, 2-3 mm long; pedicels 3-4 mm long; ovary 2 mm long; **sepals** dark red-purple, glabrous, the dorsal sepal narrowly ovate, subcarinate, acute, 7.5 mm long, 2 mm wide, 3-veined, free from the lateral sepals, the lateral sepals connate into an ovate, bicarinate lamina, 6.25 mm long, 4.5 mm wide, 2-veined, with the apex acute, acuminate, minutely bifid; **petals** membranous, narrowly ovate, acute, acuminate, 4.75 mm long, 1.2 mm wide, 1-veined; **lip** purple, obovate, unguiculate, 3 mm long, 1.75 mm wide, with the apex broadly rounded, with a pair of small, rounded lobes near the middle, contracted below the middle into a cuneate, microscopically pubescent claw, the disc shallowly sulcate between a pair of low, carinae above the middle, the claw tapered to a very narrow attachment, hinged to the end of the column-foot; **column** broadly winged above the middle, erose at the tip, slender below the middle, 3 mm long, the anther and stigma ventral, the foot thick, 1.5 mm long.

CUBA: Oriente, 1856-57, *C. Wright 659* (Holotype: K; Isotypes: BR, HAC, LE, P, W), C. Luer illustr. 18806; near Monte Verde, 1859, *C. Wright 659* (AMES); 1860-1864, *C. Wright 659* (NY); *H.F.A. Eggers 5129* (BR). Sierra Maestra, Loma del Gato, alt. 1000 m, 11 July-14 Aug. 1921, *Bros. Leon, Clement & M. Roca 10236* (HAC, NY); Loma del Gato, Dec. 1920, *Bro. Clement 497* (HAC, NY, US). Santa Clara: Trinidad Mts., alt. 2,500 ft., 12 Mar. 1930, *F.W. Hunnewell 11606* (AMES). Loma Redonla, Sevilla, alt. 1200 m, Jan. 1928, *Bro. Clemente 2050* (HAC, HAJB); Cordillera de la Gran Piedra. 28 Jan. 1953, *M. Lopèz F. 818* (HAJB). Santiago de Cuba: La Gran Piedra, 26 Sept. 1959, *J. Acuña et al. 21107* (HAC); Sancti Spiritus (Las Villas): Barrio Aguacate, Trinidad, Feb. 1956, *F.R. Alvarez 20122* (HAC). Cienfuegos: Sierra del Escambray, Cumanegagua, 9 Nov. 1987, *L. Arias et al. s.n.* (HAJB).

This species is endemic and relatively frequent in the southern, coastal range of southeastern Cuba, where it was first collected by Charles Wright in the 1850's. The elliptical leaves are minutely denticulate on the margins. The inflorescence is a several-flowered, nearly strict raceme, more than twice as long as the leaf. The dorsal sepal and synsepal are acute; the petals are narrowly acute and acuminate; and the proportionately small lip is obovate with a cuneate claw below a pair of rounded, marginal lobes near the middle.

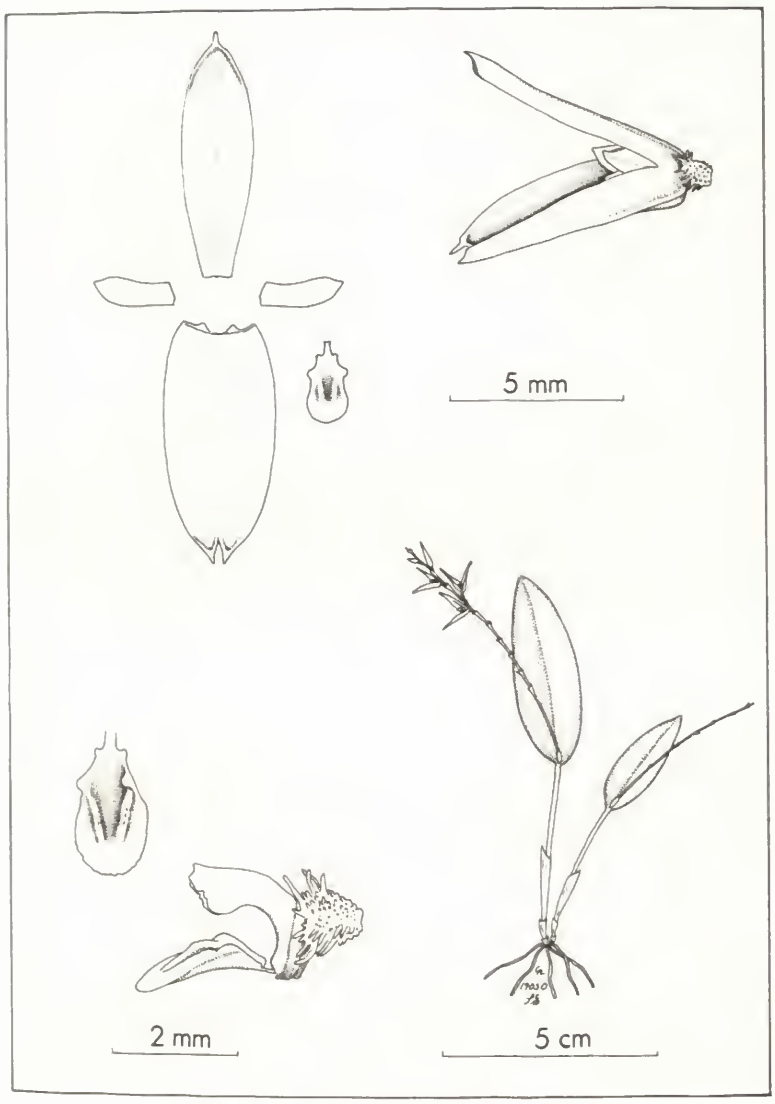

Fig. 1. Pleurothallis alpestris

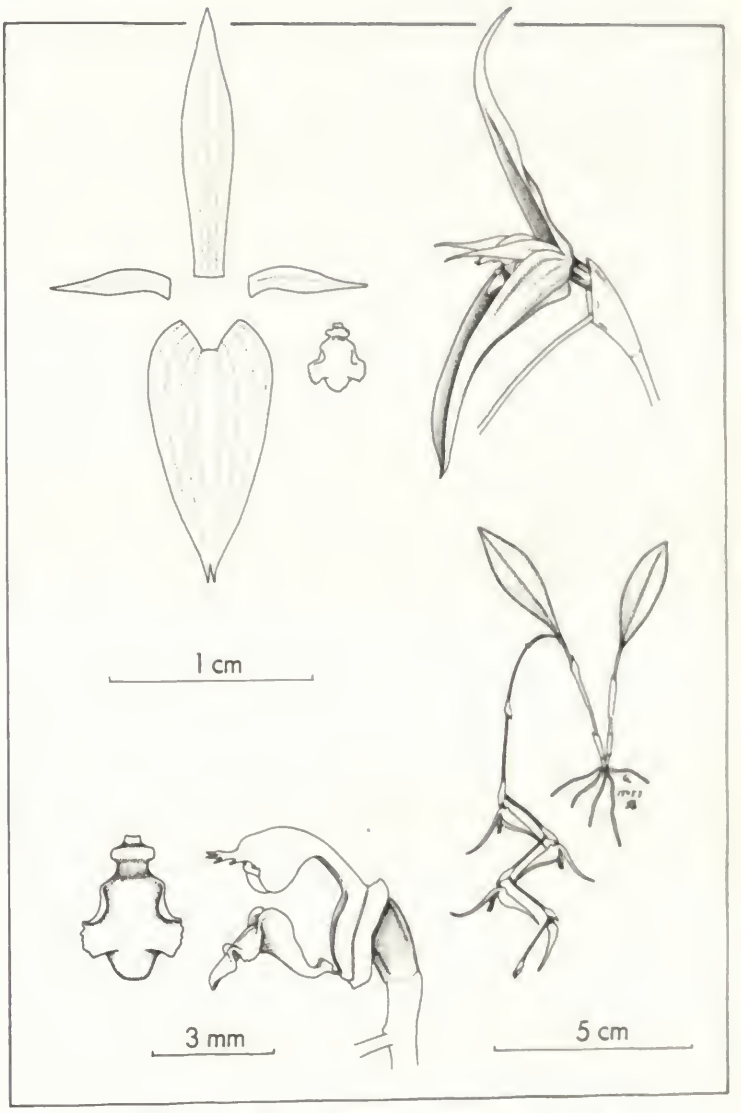

Fig. 2. Pleurothallis appendiculata

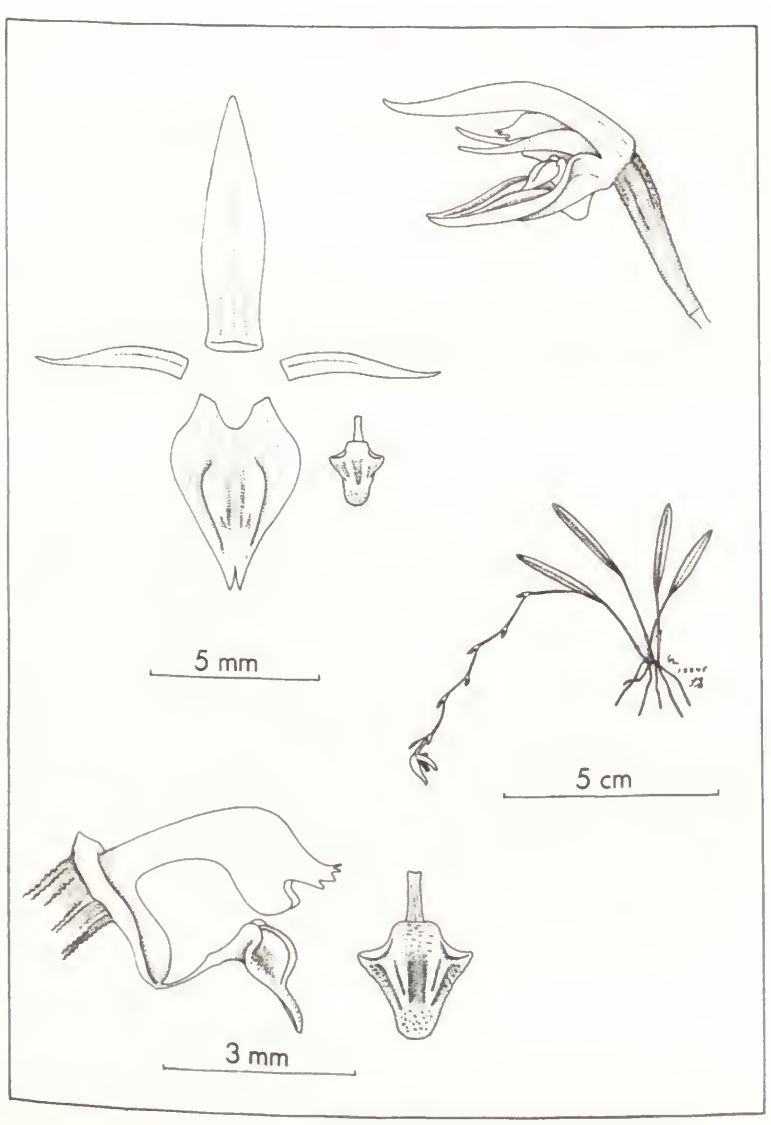

Fig. 3. Pleurothallis bahorucensis

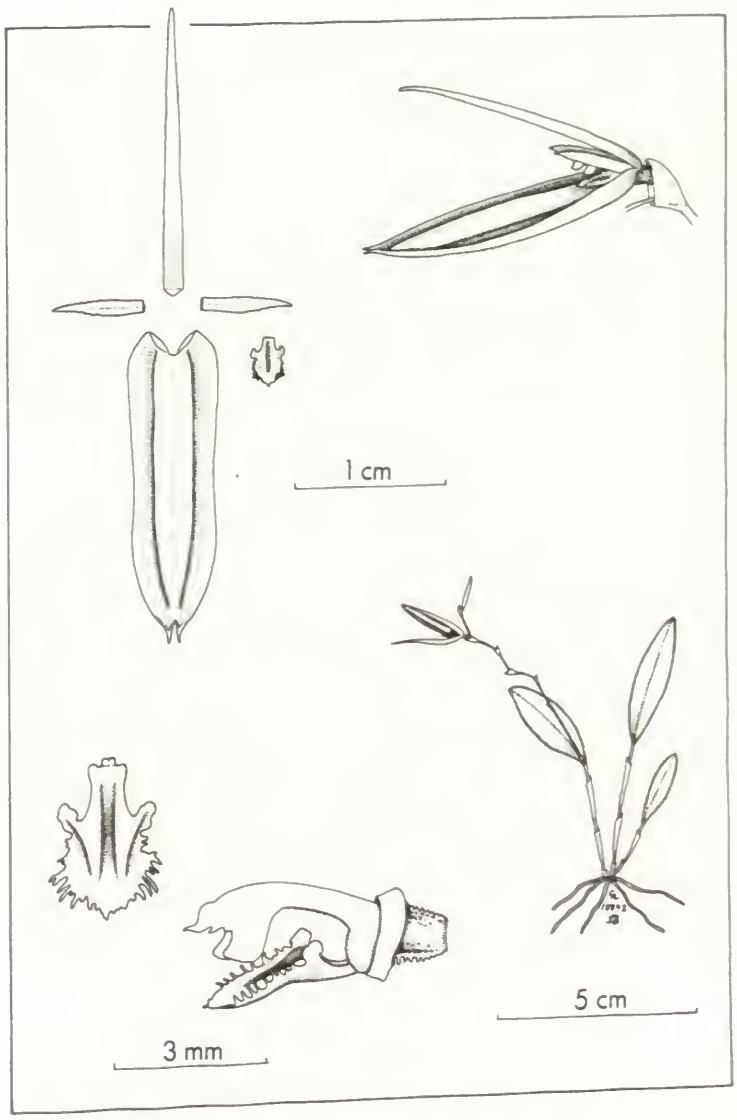

Fig. 4. Pleurothallis erosa

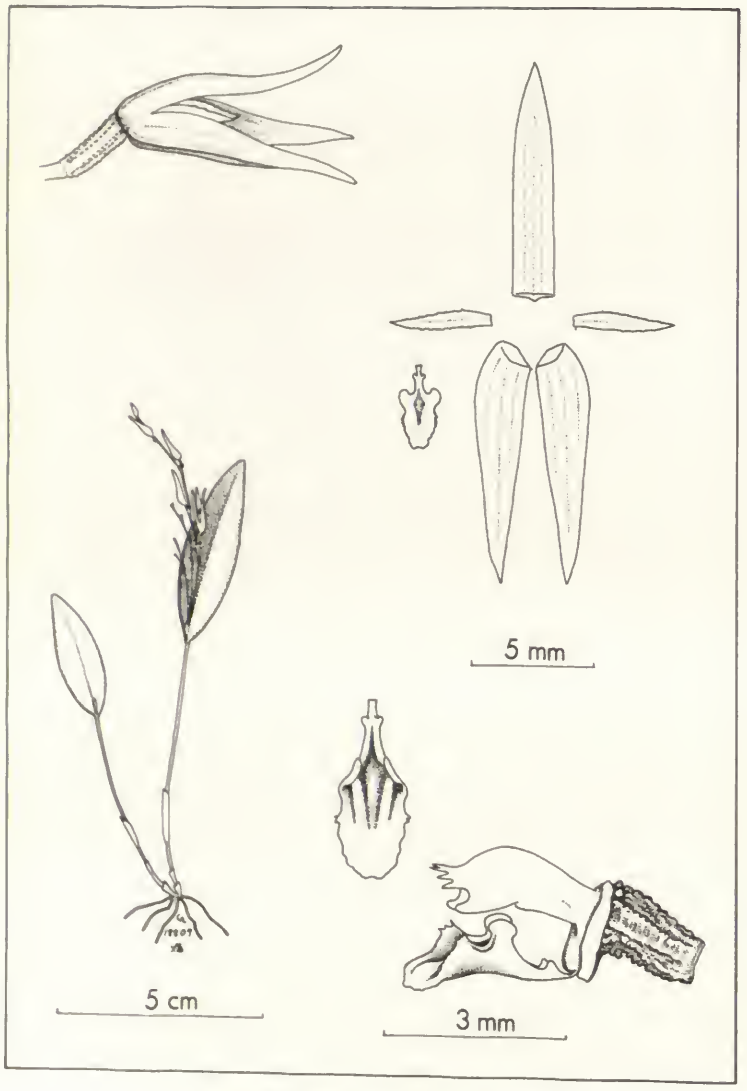

Fig. 5. Pleurothallis laxa

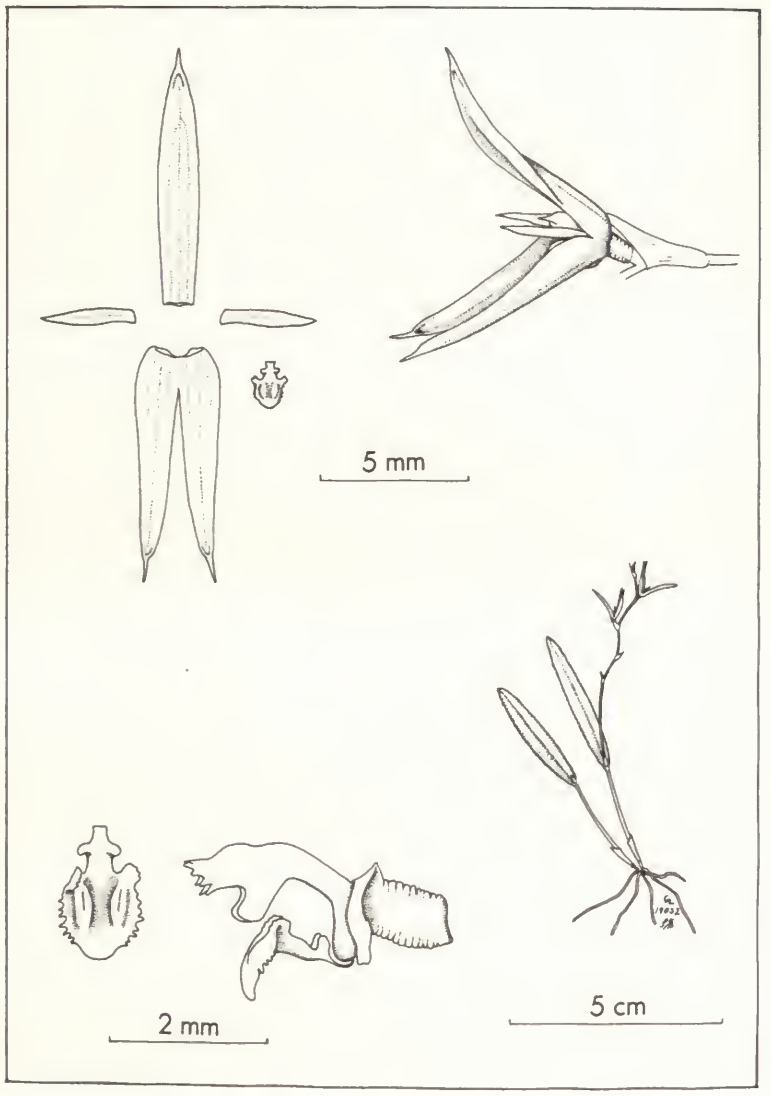

Fig. 6. Pleurothallis parvula

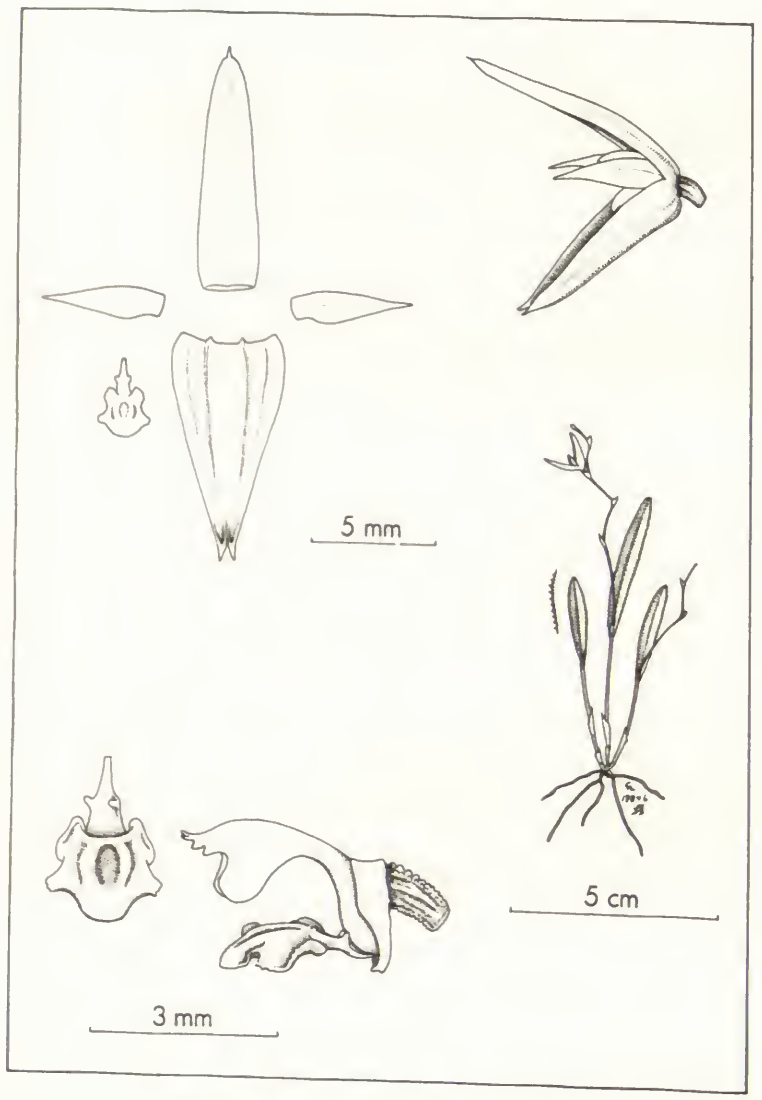

Fig. 7. Pleurothallis parvula
(Pleurothallis platyglottis)

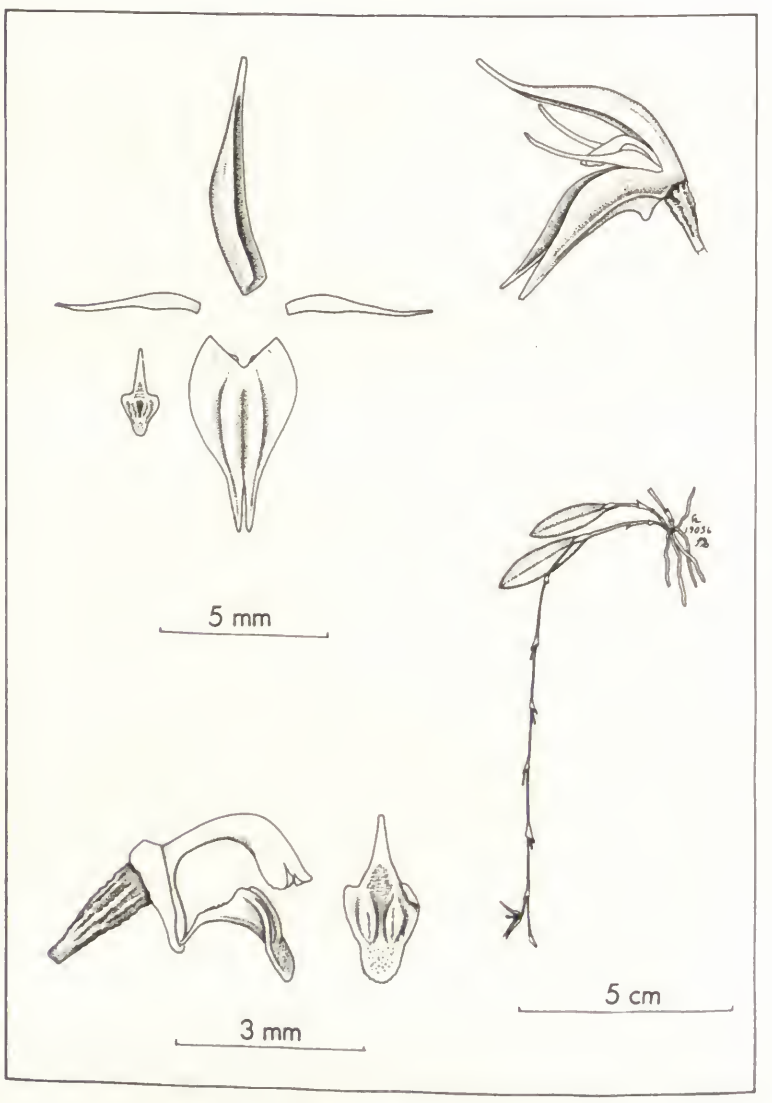

Fig. 8. Pleurothallis pendens

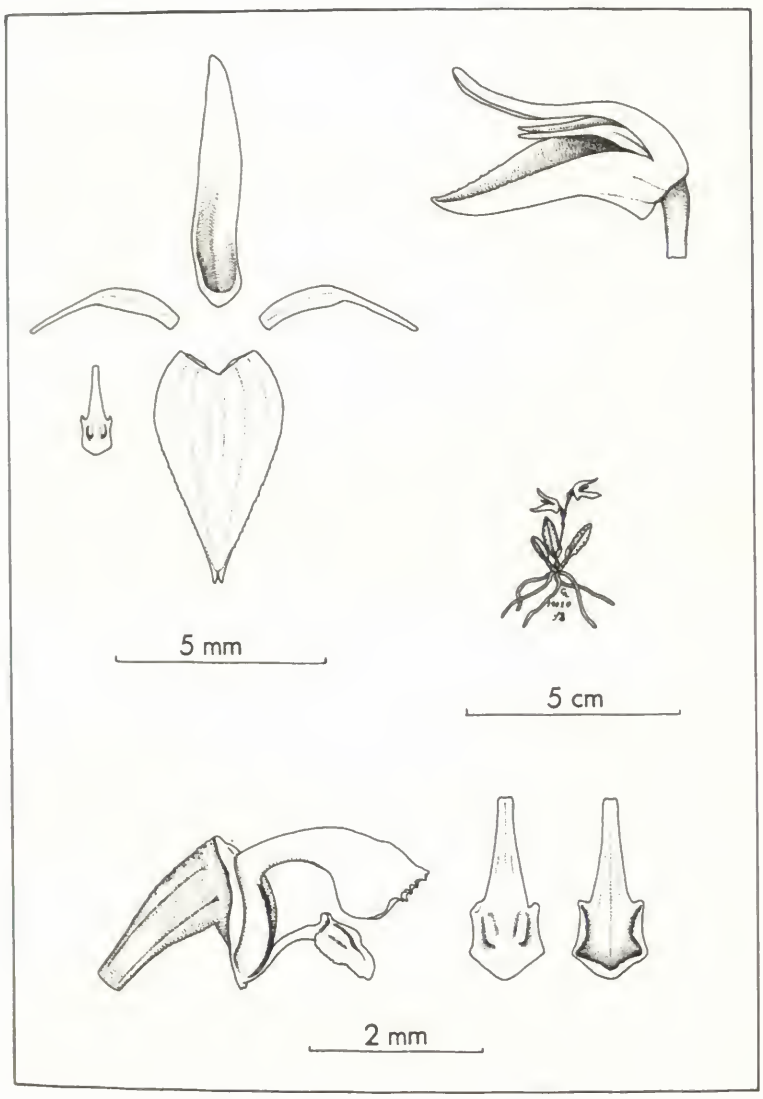

Fig. 9. Pleurothallis privigna

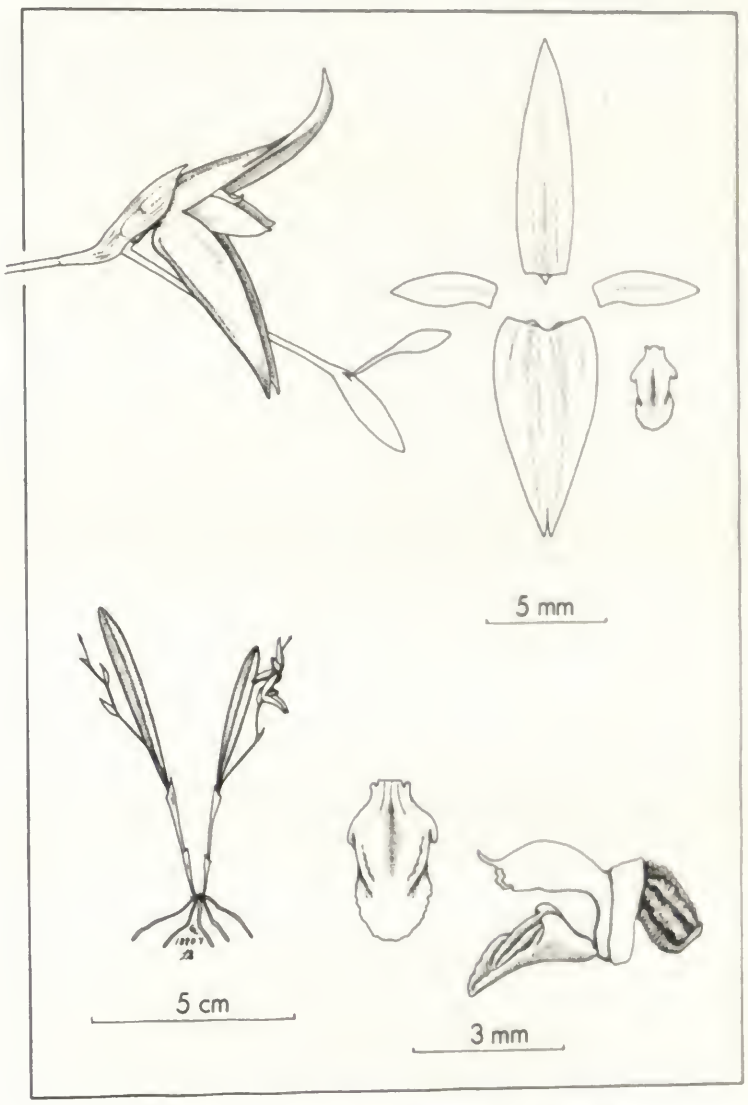

Fig. 10. Pleurothallis prostrata

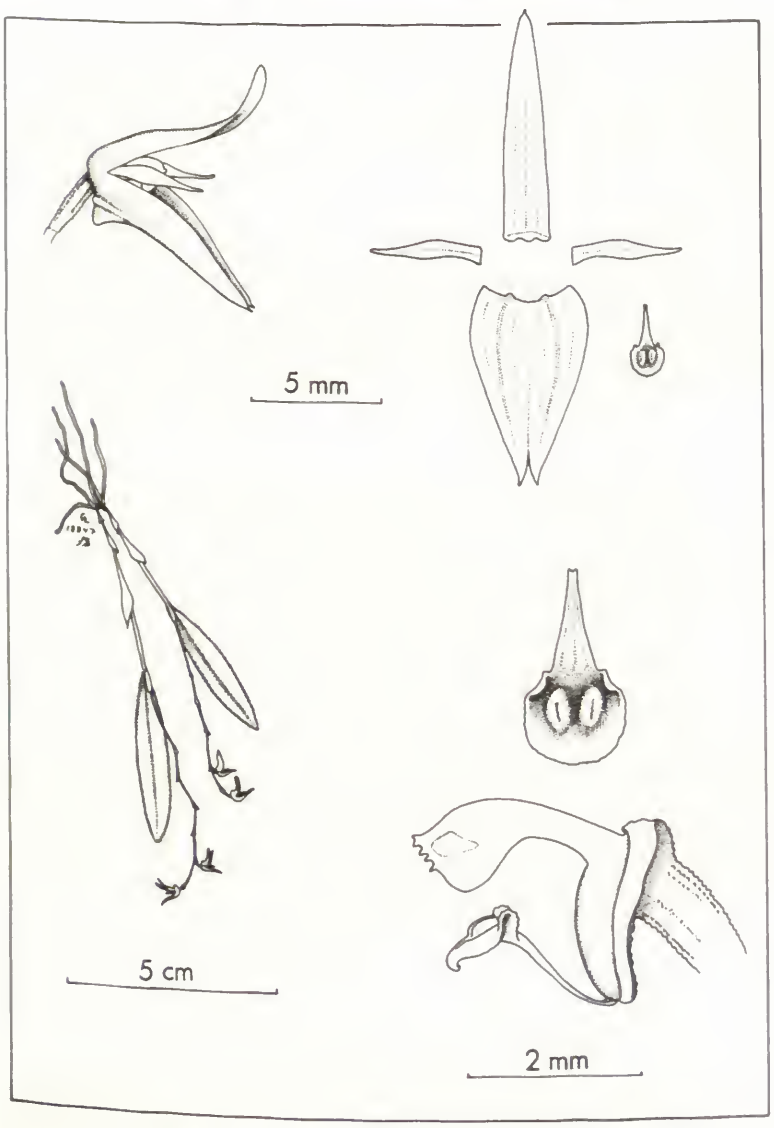

Fig. 11. Pleurothallis quisqueyana

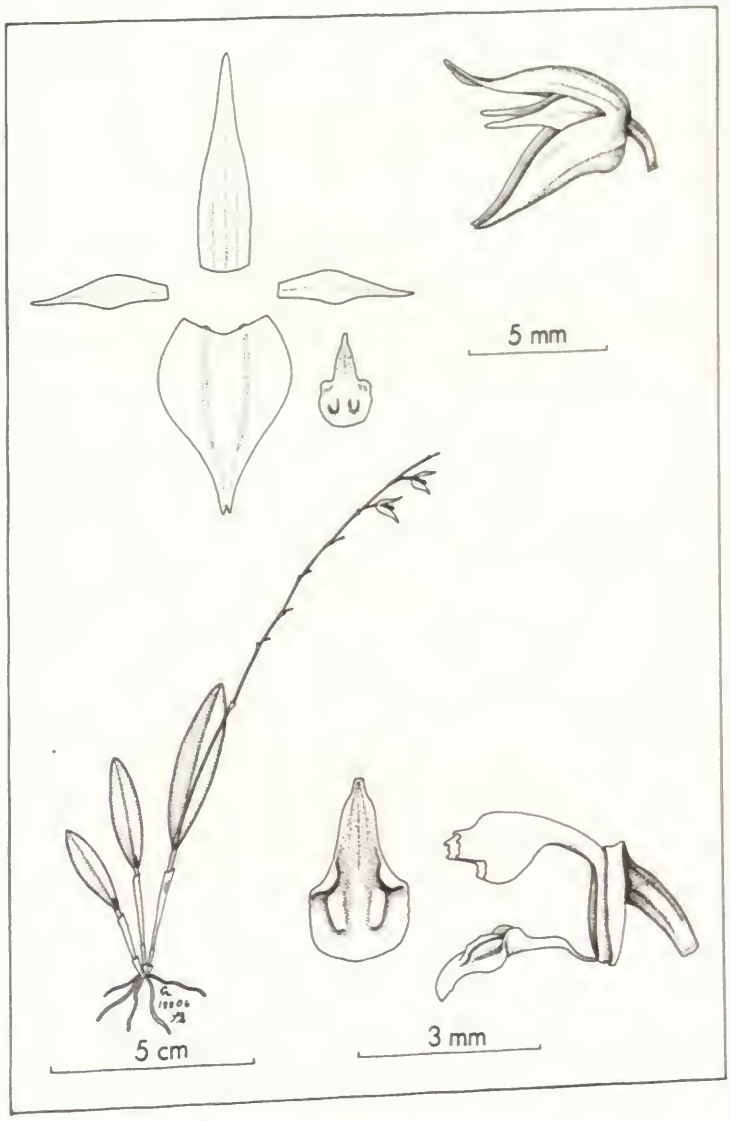

Fig. 12. Pleurothallis trichophora

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trichophora 39, 40, 46, 47, **48**, Fig. 12.

REFERENCES

ACUNA, J. 1939. Catalogo descriptivo de las Orquídeas Cubanas. Edicion Experimental Agronómica Santiago de las Vegas 60: 118-139. Reprinted 1987.
DOD, D.D. 1984. Orquídeas nuevas para La Española y otras notas. V. Moscosoa 3: 100-120.
FAWCETT, W. & A.R. RENDLE, 1910. Flora of Jamaica, Orchidaceae 52-66.
LEON, Brother. 1946. Flora de Cuba. Part I. Novedades en la Flora de Cuba. Habana Cultural, Habana: 366-371. Reprinted 1983.
LUER, C.A., 1999. New species of pleurothallids from Cuba and Hispaniola. Lindleyana 14: 106-121.

SYSTEMATICS OF *PLEUROTHALLIS* SUBGENUS *EFFUSIA*

ABSTRACT

A brief history of subgenus *Effusia* Luer of *Pleurothallis* R.Br. is given and described. A key to the sections and species is given. Each species is described and illustrated with a black and white drawing.

New taxa:
Pleurothallis subgen. **Effusia** Luer, subgen. nov.
Pleurothallis thomasii Luer, sp. nov.

The first species of subgenus *Effusia* to be described was *Pleurothallis flexuosa* as *Specklinia flexuosa* by Poeppig and Endlicher in 1835 from a Peruvian collection by Poeppig in 1829. Lindley transferred it to *Pleurothallis* in 1842.

This taxon was first recognized by Lindley in 1842 as a section of *Pleurothallis*. In his *Folia Orchidacea* of 1859, he did not maintain the section. Instead, he scattered the closely related species known at that time into five sections: *Macrophyllae-Racemosae*, Brachystachyae, Elongatae, Acuminatae, *and* Apodae-Caespitosae, the last section with the most species attributable to subgenus *Effusia*, probably because of the short ramicauls. Barbosa Rodrigues scattered species attributable to this subgenus into *Anathallis, Lepanthes*, and *Pleurothallis*. Cogniaux also scattered the species into various infrageneric taxa.

Subgenus *Effusia* was treated as section *Effusae* in *Specklinia* along with section *Acuminatae* in *Icones Pleurothallidinarum*-3 (Luer, 1986). Neither section could remain in *Specklinia* as presently more strictly defined, although a few species show some affinity with *Specklinia*, but the affinity of some species with subgenus *Acianthera seems even greater. Subgenus* Specklinia *is characterized by a small* habit with a ramicaul usually distinctly shorter than the leaf. The flowers are extremely variable, three sections now being recognized. Sections *Acuminatae* and *Effusae* with larger habits with longer ramicauls (those of some alliances within *Effusae* being shorter than the leaf) have been removed to subgenera of *Pleurothallis*. *Although related to subgenus* Acuminatia, *subgenus* Effusia *is most easily* distinguished by the lateral sepals that are variously connate to completely connate, sometimes forming a deeply concave synsepal. From subgenus *Acianthera*, it is distinguished by entire, obtuse petals that are only microscopically denticulate in a few species.

The species of subgenus *Effusia* are widely distributed from southern Mexico into southern Brazil. Over one hundred binomials have been attributed to the subgenus, many of which are treated as synonyms. The 40 species treated here are Andean or from regions farther north (Central America and the Antilles), but two of them also occur in Brazil. About 23 species are found in Brazil, including the two that range farther north. These species will be treated in the *Pleurothallis of Brazil*; see page 89.

SUBGENUS *EFFUSIA*

Pleurothallis subgen. **Effusia** Luer, subgen. nov.

Type: *Pleurothallis hypnicola* Lindl., Edwards' Bot. Reg. 28: Misc. 75, 1842.
Ety.: From the Latin *effusus*, "spread out," referring to the loose inflorescence.

Inflorescentia laxe racemiflora, sepala lateralia plus minusve connata, labellum unguiculatum.

Syn.: *Pleurothallis* sect. *Effusae* Lindl., Edwards' Bot. Reg. 28: Misc. 75, 1842..
Lectotype: *Pleurothallis hypnicola* Lindl.

Syn.: *Pleurothallis* sect. *Fractiflexae* Pabst, Orch. Bras. 1: 154, 1975, nomen nudum.

Plants perennial, small, medium in size to large, epiphytic to terrestrial, caespitose to shortly repent; roots slender. Ramicauls erect, short to elongated, non-pseudobulbous, unifoliate, enclosed by a tubular, glabrous sheath above or below the middle, and other sheaths at the base. **Leaf** erect, coriaceous, smooth, green, more or less elliptical with the apex acute to obtuse, shallowly notched, the base narrowly or broadly cuneate to rounded, sessile, or gradually or abruptly contracted into a petiole. **Inflorescence** 1 to several, erect to suberect, simultaneously to successively flowered racemes, the flowers usually resupinate, variously colored, borne by a slender to stout peduncle that emerges laterally from the ramicaul with a distinct or indistinct annulus a short distance below the abscission layer, or from the apex of the ramicaul at the base of the leaf, with a relatively inconspicuous spathe; floral bracts infundibular or tubular; pedicels longer or shorter than the floral bract; ovary smooth, trivalvate; **sepals** membranous, glabrous, pubescent to long-villous within, ovate to elliptical, acute to acuminate but non-caudate, the dorsal practically free from the laterals, the laterals partly to completely connate; **petals** elliptical, obovate to spathulate, acute to obtuse, entire (rarely minutely denticulate); **lip** arcuate, more or less trilobed with the lobes near or below the middle and erect, narrowed below the lobes into a broad to narrow, subunguiculate base, the disc with a pair of longitudinal calli near the margins, or upon the margins, obtuse to rounded at the apex, entire to occasionally denticulate or verrucose, truncate at the base, often with a lobule at each corner, hinged to the tip of the column-foot; **column** elongate, terete to winged or toothed at the apex, the anther, rostellum and stigma ventral, the pollinia 2, obovoid, with a minute viscidium, the base of the column variously prolonged into a column-foot.

Subgenus *Effusia* is characterized by a ramicaul shorter than, to much longer than the leaf. The leaf is narrowly or broadly cuneate, or rounded at the base, and either gradually or abruptly petiolate. The inflorescence is racemose, rarely single-flowered, the racemes borne laterally a short distance below the abscission layer, or at the base of the leaf from the apex of the ramicaul. The racemes are produced singly or several simultaneously in a fascicle. The flowers are produced more or less simultaneously or successively in short or elongated racemes. The dorsal sepal is essentially free, but the laterals are variously connate into a synsepal; the petals are small and elliptical, more or less unguiculate, and often spathulate or flabellate; and the lip is arcuate with erect, marginal lobes at or below the middle. The disc is often variously verrucose, and with a pair of longitudinal calli near the margins to intramural, and shallowly concave centrally between the calli. Below the lobes the lip is more or less broadly unguiculate. The column is stout, usually variously winged and denticulate at the apex, with the anther and stigma ventral. The pair of pollinia are attached to a single, small viscidium. The column-foot extends beyond the end of the ovary. The lip is delicately hinged to the tip.

Numerous, more or less interrelated alliances constitute the subgenus. Some species seem allied to subgenus *Acianthera*; others, to subgenus *Specklinia*. Some species or individuals (e.g., *P. gelida, P. hamiltonii, P. racemiflora*, and *P. tripterantha*) probably are not closely allied to the majority, being brought together by similar, morphological, key features. Perhaps these four would be treated better in respective, unispecific subgenera. Future studies of DNA may help to place them elsewhere. Proposing sections for the subgenus seems not practical at this time.

BINOMIALS PUBLISHED IN *PLEUROTHALLIS* REFERABLE TO SUBGENUS *EFFUSIA*

(excluding species endemic in Brazil)

P. amparoana Schltr. ..... Fig. 1.
P. aperta (Kraenzl.) Ames = **P. tripterantha**
P. arcuata Lindl. ..... Fig. 2.
P. aristocratica L.O.Williams = **P. retusa**
P. bernoullii Schltr. = **P. platystylis**
P. brenneri Luer ..... Fig. 3.
P. calerae Schltr. = **P. immersa**
P. campicola Luer = **P. listerophora**
P. chiquindensis Lehm. & Kraenzl. = **P. gelida**
P. chiriquensis Schltr. = **P. gelida**
P. chlorina Luer ..... Fig. 4.
P. cocornaënsis Luer & Escobar ..... Fig. 5.
P. convallaria Schltr. ..... Fig. 6.
P. convoluta Lindl. ..... Fig. 7.
P. crenata Lindl. ..... Fig. 8.
P. cypripedioides Luer ..... Fig. 9.
P. dilatata C.Schweinf. ..... Fig. 10.
P. diminuta Luer ..... Fig. 11.
P. elachopus Rchb.f. = **P. flexuosa**
P. erucosa Luer & Escobar ..... Fig. 12.
P. espinalii Luer = **P. convoluta**
P. flexuosa (Poepp. & Endl.) Lindl. ..... Fig. 13, 14, 15.
P. fornicata Luer ..... Fig. 16.
P. gelida Lindl. ..... Fig. 17, 18.
P. ghiesbreghtiana A.Rich. & Galeotti = **P. racemiflora**
P. hamata Rolfe = **P. tripterantha**
P. hamiltonii Luer ..... Fig. 19.
P. hieroglyphica Ames = **P. retusa**
P. hirsuta Ames = **P. villosa**
P. humboldtiana Luer = **P. scabrata**
P. immersa Linden & Rchb.f. ..... Fig. 20.
P. imraei Lindl. ..... Fig. 21.
P. incompta Rchb.f. = **P. racemiflora**
P. jalapensis (Kraenzl.) Garay ..... Fig. 22.
P. kefersteiniana Rchb.f. = **P. flexuosa**
P. krameriana Rchb.f. = **P. immersa**
P. lasiosepala Schltr. = **P. immersa**
P. lehmanneptis Luer & Escobar ..... Fig. 23.
P. listerophora Schltr. ..... Fig. 24.
P. longispicata L.O.Williams ..... Fig. 25.
P. longissima Lindl. = **P. racemiflora**
P. lyroglossa Schltr. = **P. racemiflora**
P. medellinensis Schltr. = **P. tripterantha**
P. nicaraguënsis Rchb.f. = **P. racemiflora**
P. niederleinii Schltr. = **P. racemiflora**
P. nigriflora L.O.Williams ..... Fig. 26.
P. oestlundiana L.O.Williams ..... Fig. 27, 28.
P. ornata Rchb.f. ..... Fig. 29.
P. papillisepala Schltr. = **P. convoluta**
P. petiolaris Luer

P. polyliria Endres & Rchb.f. = **P. gelida**
P. procumbens Lindl. = **P. tripterantha**
P. prolixa Luer .....Fig. 32.
P. pseudocheila Luer & Escobar.....Fig. 33.
P. puberula Rolfe, not Klotzsch = **P. gelida**
P. quadrifida (La Llave & Lex.) Lindl. = **P. racemiflora**
P. racemiflora Lindl. ex Lodd. .....Fig. 34.
P. remotiflora C.Schweinf. = **P. flexuosa**
P. resupinata Ames.....Fig. 35.
P. retusa (La Llave) Lindl. .....Fig. 36.
P. rhombipetala Rolfe = **P. arcuata**
P. sanguinolenta Garay & Kittredge = **P. oestlundiana**
P. scabrata Lindl. .....Fig. 37.
P. schiedei Rchb.f. = **P. villosa**
P. tarantula Luer & Escobar.....Fig. 38.
P. tenuispica Schltr. = **P. gelida**
P. thomasii Luer.....Fig. 39.
P. tortilis Luer & Escobar .....Fig. 40.
P. trialata Cogn. = **P. tripterantha**
P. trichostoma Luer .....Fig. 41.
P. tripterantha Rchb.f. .....Fig. 42, 43.
P. tripterygia Rchb.f. = **P. tripterantha**
P. trulla Rchb.f. .....Fig. 44.
P. umbraticola Schltr. = **P. imraei**
P. univaginata Lindl. = **P. gelida**
P. vaginata Schltr. .....Fig. 45.
P. villosa Knowles & Westc. .....Fig. 46.

KEY TO THE SPECIES OF SUBGENUS *EFFUSIA*

1 Raceme shorter than the leaf 2
1' Raceme longer than the leaf.....16

2 Leaf narrowly cuneate at the base 3
2' Leaf broad at the base, contracted into a twisted petiole.....8

3 Lip with tall lobes, hastate when expanded 4
3' Lip with low, longitudinal lobes.....5

4 Petals broadly obovate, unguiculate, flanking the lip and column.....*P. retusa*
4' Petals narrowly obovate, incurved below the lip.....*P. pseudocheila*

5 Sepals glabrous within.....6
5' Sepals pubescent within 7

6 Sepals ca. 4 mm long, black .....*P. nigriflora*
6' Sepals 6-8 mm long, not black.....*P. oestlundiana*

7 Plant less than 10 cm tall; leaves not convolute.....*P. listerophora*
7' Plant more than 10 cm tall; leaves more or less convolute.....*P. convoluta*

8 Lip retuse with a midline keel.....*P. tortillis*
8' Lip not retuse, without a keel.....9

9 Inflorescence 1-flowered, flower non-resupinate.....*P. chlorina*
9' Inflorescence racemose, flowers resupinate.....10

10 Raceme loosely flowered, lip narrowly unguiculate.....*P. brenneri*
10' Raceme congested, lip broadly unguiculate.....11

11 Flowers cleistogamous, glabrous within.....*P. vaginata*
11' Flowers not cleistogamous, pubescent within.....12

12 Leaf deeply concave on undersurface.....*P. erucosa*
12' Leaf not deeply concave.....13

13 Racemes numerous, simultaneous; petals obovate, obtuse.....*P. cocornaënsis*
13' Racemes 1 to few; petals unguiculate.....14

14 Petals cuneate; lip broadly truncate, verrucose.....*P. tarantula*
14' Petals spathulate; lip not broadly truncate.....15

15 Plant more than 10 cm tall; sepals long-pubescent within.....*P. imraei*
15' Plant less than 10 cm tall; sepals shortly pubescent within.....*P. petiolaris*

16 Ramicaul up to half as long as the leaf.....17
16' Ramicaul nearly as long as, or longer than the leaf.....29

17 Leaf broadly elliptical-obovate, more than 2.5 cm wide.....18
17' Leaf narrowly elliptical-obovate, less than 2 cm wide.....23

18 Lip with the blade broader than long, the claw slender.....*P. convallaria*
18' Lip with the blade longer than broad.....19

19 Petals truncate.....*P. fornicata*
19' Petals spathulate, not truncate.....20

20 Petals minutely pubescent, minutely denticulate.....*P. crenata*
20' Petals entire.....21

21 Petals subtrilobed at the apex.....*P. arcuata*
21' Petals rounded at the apex.....22

22 Peduncle clasped by about half the length of the leaf.....*P. immersa*
22' Peduncle free from the leaf.....*P. lehmanneptis*

23 Raceme with several flowers open simultaneously.....24
23' Raceme successively flowered.....25

24 Synsepal deeply concave, white, long-villous within.....*P. amparoana*
24' Synsepal shallowly concave, ciliate.....*P. jalapensis*

25 Lateral sepals convex with large, clubbed, marginal trichomes.....*P. ornata*
25' Lateral sepals not convex with trichomes 26

26 Sepals rigidly tall-carinate.....*P. tripterantha*
26' Sepals not rigidly tall-carinate.....27

27 Synsepal deeply concave.....*P. cypripedioides*
27' Synsepal not deeply concave.....28

28 Petals spathulate; column not long-beaked.....*P. flexuosa*
28' Petals obovate; column long-beaked.....*P. trichostoma*

29 Leaf more than 5 cm wide; lateral sepals connate below the middle.....30
29' Leaf less than 3 cm wide; lateral sepals connate above the middle.....31

30 Petals acute; lip subovate, narrowly acute.....*P. hamiltonii*
30' Petals obtuse; lip obcuneate, truncate.....*P. gelida*

31 Raceme with more than 5 flowers open simultaneously.....32
31' Raceme with fewer than 4 flowers open simultaneously.....37

32 Lip pyriform, round at the apex, shortly unguiculate.....*P. racemiflora*
32' Lip not pyriform and round at the apex.....33

33 Lip with the blade suborbicular with abrupt, narrow claw.....*P. trulla*
33' Lip with the blade not suborbicular with abrupt, narrow claw.....34

34 Petals narrowly ovate, acute .....*P. scabrata*
34' Petals obovate, obtuse 35

35 Sepals pubescent within .....*P. prolixa*
35' Sepals glabrous.....36

36 Lip oblong, slightly narrowed into the claw.....*P. platystylis*
36' Lip shallowly 3-lobed, narrowed above and below.....*P. dilatata*

37 Sepals pubescent within 38
37' Sepals glabrous within 40

38 Dorsal sepal ovate, acute .....*P. fornicata*
38' Dorsal sepal obovate, obtuse.....39

39 Pedicels 4-6 mm long.....*P. villosa*
39' Pedicels 1-1.5 mm long .....*P. thomasii*

40 Sepals serrate; lip oblong .....*P. resupinata*
40' Sepals not serrate; lip 3-lobed.....*P. longispicata*

Pleurothallis amparoana Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 23, 1923.

Ety.: Dedicated to Sra. Amparo de Zeledon of San José, Costa Rica, who was cultivating this species.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 3-6 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, narrowly linear-obovate, subacute to obtuse, 7-11 cm long, 1-1.3 cm wide, gradually narrowed below into a subpetiolate base. **Inflorescence** a loose, distichous, simultaneously several-flowered raceme, 9-14 cm long including the peduncle 3-4 cm long, subtended by a narrow spathe ca. 5 mm long from an annulus below the apex of the ramicaul; floral bracts thin, infundibular, 6 mm long; pedicels 0.5-1 mm long; ovary 2.5 mm long; **sepals** creamy white or white, long-pubescent within, the dorsal sepal ovate, acute, 8 mm long, 3 mm wide, 3-veined, the lateral sepals connate into a deeply concave, inflated, obovoid synsepal, 9 mm long, 7 mm wide, unexpanded, 6-veined; **petals** translucent, broadly elliptical, obtuse, apiculate, 2 mm long, 1.5 mm wide, 3-veined; **lip** white, arcuate, 3-lobed, unguiculate, 2.5 mm long, 1.5 mm wide, rounded at the apex, the lateral lobes erect, broadly rounded with low, intramural carinae, below the middle, the disc with a midline flat callus with irregular edges below the middle above the claw, the claw short, truncate, hinged to the column-foot; **column** green, slender, arcuate, 3.5 mm long, with a long, denticulate hood at the apex, the foot 0.5 mm long, the anther, rostellum and stigma ventral.

COSTA RICA: **Heredia**: San Jeronimo, May 1921, *C. Brade 4* (Holotype of *P. amparoana* destroyed at B; Lectotype here designated: AMES); San Jeronimo, 20 Aug. 1935, *F. Solis Rojas 345* (MO). **Alajuela**: above San Ramón, *A. Endres 30, sketch 24* (W). **Puntarenas**: Monteverde, alt. 1600-1700 m, 7 June 1989, *J.T. Atwood 89-126* (K, MO, SEL). **San José**: Aserrí, alt. 1300 m, 20 Sept. 1924, *A. Alfaro s.n.* (AMES).

This handsome species, already known from illustrations made by Endres in Costa Rica in the nineteenth century, is apparently confined to that country where it is relatively uncommon. It is characterized by narrow leaves, longer than the ramicauls, and surpassed by a loose raceme of relatively large, white flowers that are filled within by long, soft, white hairs. The synsepal is deeply inflated; the petals are broadly elliptical; and the lip has broadly rounded lateral lobes above the unguiculate base.

Pleurothallis arcuata Lindl., Folia Orch. *Pleurothallis* 34, 1859.

Ety.: From the Latin *arcuatus*, "arcuate," perhaps referring to the raceme or the lip.

Syn.: *Lepanthes chrysosepala* Barb.Rodr., Gen. Sp. Orch. Nov. 2: 44, 1882.
Ety.: From the Greek *chrysosepalon*, "yellow sepal," referring to the color of flowers.

Syn.: *Humboldtia arcuata* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Pleurothallis ocellata* Porsch, Oesterr. Bot. Z. 55: 156, 1905.
Ety.: From the Latin *ocellatus*, "with two-colored spots," referring to the lip.

Syn.: *Pleurothallis rhombipetala* Rolfe, Bull. Misc. Inform. 4, 1893.
Ety.: From the Greek *rhombipetalon*, "rhomboid petal," referring to the shape of the petals.

Plant medium to large in size, epiphytic, caespitose, roots slender. Ramicauls stout, erect, 2-6.5 cm long, enclosed by a loose, tubular sheath below the middle and 1-2 sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical, subacute to obtuse, 4-9 cm long, 1.5-2.75 cm wide, cuneate below into a subpetiolate base. **Inflorescence** a loose, distichous, slightly flexuous several- to many-flowered raceme of non-resupinate flowers, 20-45 cm long including the peduncle 10-25 cm long, borne from the base of the leaf with a thin spathe 5-8 mm long; floral bracts 4-7 mm long; pedicels 8-15 mm long; ovary 7-10 mm long; **sepals** green to yellow or brown, variously suffused or spotted with brown or purple, carinate and glabrous externally, densely pubescent within, the middle sepal ovate, acute, concave basally, with the sides slightly recurved above the middle, 8-13 mm long, 3-5 mm wide, 3-veined, the lateral sepals connate to the apex into a narrowly oblong synsepal, minutely bifid at the subacute apex, 7-12 mm long, 3-4 mm wide, 6-veined, concave with the sides erect and contracted below the middle, the sides slightly recurved above the middle; **petals** spotted with purple, fleshy with the midvein thick toward the apex, obscurely tribolulate with the apex acuminate and rounded at the tip, both sides triangular with rounded, obtuse apices, unguiculate below the middle, 3-4 mm long, 2.5 mm wide, 1-veined; **lip** spotted with purple, oblong-trilobed, arcuate, 3-3.5 mm long, 1 mm wide, the apex minutely verrucose, subacute to rounded, the lobes below the middle, erect, obtuse, the disc sulcate between a pair of low, parallel, more or less verrucose calli on the middle third, the base truncate with basal auricles, hinged between to the column-foot; **column** spotted, stout, longitudinally winged, 3-3.5 mm long, denticulate at the apex, the hooded anther, rostellum and stigma ventral, the foot thick, 1 mm long.

BRAZIL: **Rio de Janeiro**: without locality, *J. Miers s.n.* (Holotype: K); mountains near Rodeio, *J.B. Rodrigues s.n.* (holotype of *Lepanthes chrysosepala*: Rodrigues' illustr.); without locality *A. Glaziou 17254, 19885* (C, K). Fazenda Bella Vista near Santa Cruz on Rio Pardo, alt. ca. 500 m, July 1901, *R. von Wettstein & V. Schiffner s.n.* (holotype of *P. ocellata*: W?); Serra dos Aruras, Theresópolis, Jan. 1888, *J.T. de Moura s.n.* (BR); São Pedro, Tapera, alt. 1300 m, 7 Nov. 1967, *A de Oliviera 23526* (M, SP); Organ Mts., vicinity of Theresópolis, alt. 1100 m, 17 Dec. 1928, *L.B. Smith 1512* (AMES); same area, cultivated by Orquidário Binot, 30 Nov. 1989, *C. Luer 14480, 14490, 14521* (MO); between Theresópolis and Salvador, alt. 950 m, 2 Dec. 1989, *C. Luer, J. Luer & A. Pessoa 14544* (MO); Nova Friburgo, Rio Macaé, alt. 1000 m, 25 Jan. 1997, *A. Toscano de Brito, C. Luer, J. Luer & D. Miller 1107* (MO). Imported from Brazil without collection data, Dec. 1889, by *F. Sander & Co., s.n.* (K).
VENEZUELA: imported from Mt. Roraima by Messrs. Charlesworth, Shuttleworth & Co., of Clapham, Dec. 1892, (holotype of *P. rhombipetala*: K); flowered in cultivation at Bruxelles (BR); without collection data, cultivated Oct. 1889 by *Sir Trevor Lawrence s.n.* (K).

This handsome species is frequent and widely distributed through Brazil to the Guyana highlands. It is very closely allied to *P. alligatorifera*, which is sometimes reduced to its synonymy. In spite of the extreme similarity, the two species are separated distantly in the key in *Orchidaceae Brasilienses*. Herbarium specimens are sometimes difficult to distinguish without hydration of a flower.

Pleurothallis arcuata is characterized by a stout ramicaul shorter than the elliptical leaf. The loosely flowered inflorescence far exceeds the leaf. The pedicel and ovary are elongated, bearing the flower in a non-resupinate position. The middle sepal is ovate and acute, expanded above the concave base with the sides only slightly recurved. The synsepal is contracted and concave below the middle between erect sides above which the sides recurve slightly. The petals are three-lobed with the apex and marginal lobes rounded. The lip is thick and arcuate with a pair of calli within erect margins; the apex is verruculose, and the base is bilobulate.

Pleurothallis alligatorifera varies from the above with shorter pedicels and ovaries; a narrower and thicker middle sepal that is deeply concave below the middle between thickened sides, and fleshy thickened above the middle to a rounded apex; and petals with an acute apex.

On the type-sheet of *P. rhombipetala* are three separate specimens. Mounted on the right side of the herbarium sheet are a few fragments which constitute the holotype. Attached at the corner is a brief, handwritten note: "Will you kindly name for us the enclosed 'curio,' it comes from the Roraima. Yours truly and oblige E?. Suttleworth." Mounted on the left side of the sheet is a leaf and flowerless inflorescence from F. Sander & Co. imported from Brazil, dated Oct. 1889. Mounted between the two above specimens is another leaf and an inflorescence with one remaining flower solidly glued to the sheet, and a packet containing two buds. This specimen came from Sir Trevor Lawrence, Burford Lodge, Dec. 1889, without collection data. The habit of all three is that of the common Brazilian *P. arcuata*.

Pleurothallis brenneri Luer, Selbyana 3: 64, 1976.

Ety.: Named for Joe Brenner, formerly of Puyo, Ecuador, who collected this species.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 4-11 cm long, with a long, tubular sheath below the middle and 2-3 others at the base. **Leaf** erect, coriaceous, elliptical, petiolate, subacute to obtuse, 2-6 cm long including a petiole ca. 1 cm long, 1.5-2 cm wide, cuneate below into the petiole. **Inflorescence** a loose, distichous, simultaneously 2- to 4-flowered raceme, 2-5 cm long including the peduncle 0.5-2 cm long, subtended by a narrow spathe 4-7 mm long from an annulus below the apex of the ramicaul; floral bracts 1.5-4 mm long; pedicels 1.5-2 mm long; ovary 2 mm long; **sepals** light green, mottled or dotted with purple, especially along veins, microscopically pubescent within, the dorsal sepal obovate, subacute to obtuse, 8-14 mm long, 4-6 mm wide, 3-veined, the lateral sepals connate to near the apex into an ovate synsepal, concave below the middle to form a large mentum with the column-foot, recurving above the middle, obtuse, 7-12 mm long, 5-8 mm wide; **petals** translucent, flecked with purple, obovate, rounded at the apex, narrowed toward the base, 4-6 mm

long, 2-4 mm wide, with 3 close veins; **lip** yellow-orange, mottled with purple, arcuate, sagittate-trilobed, obtuse, unguiculate, 4-8 mm long, 2-3 mm wide expanded, the sides (lateral lobes) erect and broadly rounded below the middle, with longitudinal, intramural carinae, narrowed below the lateral lobes into an unguiculate base 1-2 mm long, hinged to the column-foot; **column** slender, 2.2-4 mm long, the anther-cap protruding beyond the clinandrium, the foot about as long, the anther, rostellum and stigma ventral.

ECUADOR: **Bolívar**: epiphytic in an orange grove below Pallatanga, alt. 800 m, *J. Brenner 4* (Holotype: SEL). **Loja**: El Cisne, 30 Oct. 1876, *E. André 4345* (K); above El Cisne, alt. 2400-2500 m, *F.C. Lehmann 8201* (K); between Loja and Catacocha, alt. 2200 m, 7 Feb. 1977, *G. Harling, U. Eliasson & L. Andersson 15152* (GB); mountain scrub between San Pedro de la Bendita and Porto Velo, alt. 2150-2200 m, 29 Feb. 1988, *U. Molau & B. Eriksen 3119* (GB). **Zamora-Chinchipe**: north of Yangana, alt. 2500 m, 3 Apr. 1985, *G. Harling & L. Andersson 23584* (AMES, GB).

This species is locally frequent in several areas of southeastern Ecuador, usually at moderate altitudes in relatively dry scrub forest. The petiole of the elliptical leaf is twisted so that the few-flowered raceme appears along the back side. The sepals are obtuse and pubescent within, the petals are obtuse, and the lip, long-unguiculate.

Pleurothallis chlorina Luer, Phytologia 47: 75, 1980.

Ety.: From the Latin *chlorinus* (Greek *chloros*), "green," referring to the color of the flowers.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 2.5-4.5 cm long, with a close, tubular sheath below the middle and another sheath at the base. **Leaf** erect, thickly coriaceous, ovate, petiolate, subacute to obtuse, 20-28 mm long, 13-17 mm wide, broadly cuneate below, contracted into a twisted petiole 4-8 mm long. **Inflorescence** a solitary, successive, non-resupinate, yellow-green flower, borne behind the leaf, subtended by a spathe 3-4 mm long at the base of the petiole; peduncle 8-10 mm long; floral bract oblique, 4 mm long; pedicel curved, 3-4 mm long; ovary 2 mm long; **sepals** crystalline light yellow-green, microscopically pubescent within, the middle sepal oblong, subacute to obtuse, 16 mm long, 6.5 mm wide, 3-veined, the lateral sepals connate to the apex into an oblong synsepal, lightly veined in purple externally, concave below the middle to form an acute, narrow mentum with the column-foot, recurving above the middle, obtuse, 14 mm long, 8 mm wide; **petals** translucent yellow-green, obovate, subacute, 9.5 mm long, 3.5 mm wide, with 3 central veins, elevated externally; **lip** pale yellow, long-unguiculate, arcuate, sagittate, the blade ovate, minutely serrate, narrowly obtuse, 7 mm long including the claw 2.75 mm long, 2.5 mm wide, the disc with a pair of low, longitudinal carinae, the claw slender, hinged to the tip of the column-foot; **column** pale yellow, broadly winged, 3.5 mm long, the anther-cap protruding beyond the clinandrium, the foot 4 mm long, the anther, rostellum and stigma ventral.

ECUADOR: **Loja**: epiphytic in scrub forest northwest of El Cisne, alt. 2300 m, 24 Sept. 1980, *C. Luer et al. 5582* (Holotype: SEL); El Cisne, 30 Oct. 1876, *E. André 4346* (K).

This species occurs in relatively dry, scrub forest of southwestern Ecuador. It has been collected only twice that I know of, the first by André in the nineteenth century, and the second a century later in the same area. It is characterized by thick, ovate leaves with twisted petioles that permit the proportionately large, non-resupinate, yellow-green flower to be borne along the back side. The blade of the lip is serrate and supported by a long claw. A narrow mentum is formed by the long column-foot with the synsepal.

Pleurothallis cocornaënsis Luer & Escobar, Orquideología 20: 45, 1996.

Ety.: Named for the municipality of Cocorná where this species was discovered.

Plant large, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 20-30 cm long, with a loose, tubular sheath above the middle and 2-3 sheaths at the base. **Leaf** erect, coriaceous, broadly elliptical, obtuse, shortly acuminate, the blade 15-18 cm long, 7-10 cm wide, cuneate below into a stout petiole 2-3 cm long, slightly twisted so that part of the inflorescence appears at the back of the base of the leaf. **Inflorescence** a congestion of numerous (up to 10 or more) simultaneously 3- to 4-flowered racemes, 2.5-3 cm long including the peduncle ca. 1 cm long, subtended by a broad spathe 1 cm long, at or barely below the abscission layer (the apex of the ramicaul); flowers non-resupinate; floral bracts tubular, 3-4 mm long; pedicels 4 mm long; ovary 3 mm long; **sepals** light pinkish brown, shortly pubescent within, the dorsal sepal ovate, obtuse, 9-10 mm long, 4 mm wide, 3-veined, the lateral sepals elliptical, obtuse, 9-10 mm long, 3 mm wide, connate 5 mm to near the middle, forming a short, conical

mentum with the column-foot, and a broader, distinct mentum beneath the apex of the lip; **petals** rose, cuneate-obovate, truncate, 3.75 mm long, 1.4 mm wide above the middle, with the midvein thickened externally; **lip** brown, rigidly arcuate, oblong, unguiculate, 3.5 mm long expanded, 1.5 mm wide, the apex rounded, markedly verrucose, the disc with a longitudinal pair of parallel calli above the middle, base broadly unguiculate, minutely bilobulate, hinged on the end to the column-foot; **column** semiterete, winged above the middle, minutely denticulate, 3 mm long, the foot thick, equally long, the anther, rostellum and stigma ventral.

COLOMBIA: **Antioquia**: Cocorná, along the autopista between Medellín and Bogotá, alt. 2100 m, collected by J. Rios, 1990, flowered in cultivation at Colomborquídeas, 15 Dec. 1992, *R. Escobar 5047* (Holotype: MO), C. Luer illustr. 17301; Río Cocorná, alt. 1800 m, collected by B. Pineda and J.P. Velez, flowered in cultivation 7 Mar. 1989, *C. Luer 14109* (K, MO); Quebrada El Viaho, alt 1800 m, cultivated at Colomborquídeas, 26 Mar. 1997, *R. Escobar 8281* (MO).

This huge species, a close relative of the frequent and widely distributed *P. imraei*, is known from the Central Cordillera of Colombia east of Medellín. It is distinguished from *P. imraei* by the taller stature, and the mass of flowers produced in numerous, short racemes. The flowers are non-resupinate and shortly pubescent, instead of long-pubescent, within. The floral parts are similar to those of *P. imraei*, but the lip is sharply arcuate with a markedly verrucose apex.

Pleurothallis convallaria Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 185, 1923.

Ety.: Named for a resemblance to the genus *Convallaria* of the Convallariaceae.

Plant medium in size to large, epiphytic, caespitose; roots slender. Ramicauls purplish, stout, erect, 5-15 cm long, enclosed by a brown, loose tubular sheath, and 2 short sheaths below at the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, 9-18 cm long, 3.5-6 cm wide, cuneate below into a conduplicate, subpetiolate base. **Inflorescence** an erect, loose, secund, nearly simultaneously several- to many-flowered raceme, 15-30 cm long including the peduncle 6-10 cm long, subtended by a narrow spathe ca. 1 cm long from the apex of the ramicaul and rising between the conduplicate sides of the subpetiolate base; floral bracts tubular, 3-4 mm long; pedicels 4-5 mm long; ovary 4-5 mm long; **sepals** reddish brown to purple, long-pubescent within above the middle, the dorsal sepal elliptical, subacute to obtuse, 10 mm long, 6 mm wide, 3-veined, with the margins more or less recurved, the lateral sepals connate to above the middle into a broadly ovate to suborbicular lamina, concave centrally, 8 mm long, 7.5 mm wide, with the apices short, subacute, in apposition; **petals** purple, glabrous, spathulate-obovate or cuneiform, 6 mm long, 4 mm wide, with the apex subtruncate, obscurely bilobed, with an external apiculum; **lip** dark purple, transversely oblong-bilobed, long-unguiculate, the blade 2.5 mm long, 4 mm wide across the lobes, the lobes semiorbicular, each with a central callus, the apices short, obtuse, recurved, with an apiculum from a midline callus between them, the claw 1.5 mm long, minutely bilobulate at the truncate base, hinged to the column-foot; **column** winged, long-hooded, 5 mm long, the foot 2.5 mm long, the anther, rostellum and stigma ventral.

COSTA RICA: **Alajuela**: San Pedro de San Ramón, alt. 1100 m, July 1921, *A.M. Brenes 84* (Holotype of *P. convallaria* destroyed at B, Lectotype: AMES, isolectotype: CR); San Ramón, ca. 1867, *A. Endres 117* (W); La Palma, alt. 1190 m, 18 Nov. 1922, *A.M. Brenes 140* (AMES); Río San Luis north of San Ramón, alt. 850 m, 17 June 1972, *R.W. Lent 2591* (AMES); headwaters of Río San Lorenzo below Fila Volcán Muerte, alt. 1000-1300 m, 14 July 1983, *K. Barringer & B. Perez 3810* (CR, F); Zapote, San Carlos, alt. 1400 m, 6 Aug. 1938, *A. Smith H-1044* (AMES); northwest of San Ramón, near Río San Luis, alt. 850 m, 17 June 1972, *R.W. Lent 2591* (MO); Reserva Forestal de San Ramón, alt. 800-1200 m, 3 Dec. 1986, *G. Herrera et al. 322* (CR, MO). **Heredia**: Sarapiqui, southeast of Horquetas, alt. 400-600 m, 14 Nov. 1989, *O. Vargas 311* (CR, MO).
NICARAGUA: **Granada**: Volcán Mombacho, alt. 1000-1500 m, *A. Heller 2930* (SEL).
PANAMA: **Veraguas**: near continental divide above Santa Fe, alt. ca. 700 m, 4 Sept. 1976, *C. Luer & R.L. Dressler 1133* (SEL).

This unique species has no close relatives, standing alone in the section. It was first collected and illustrated by Endres in the nineteenth century. It is characterized by a stout ramicaul clad in a loose sheath and shorter than the leaf. The subpetiolate base of the leaf clasps the spathe and the peduncle. The inflorescence is a loose, secund raceme of relatively large, drooping flowers that are smooth and purple externally, but filled within by a mat of long-villous, white hairs. The petals are cuneate, more or less bilobed at the apex. The lip is transversely bilobed, tricarinate and long-unguiculate.

Pleurothallis convoluta Lindl., Ann. Mag. Nat. Hist. ser. 1, 15: 107, 1845.

Ety.: From the Latin *convolutus*, "convolute," in reference to the dry leaves in Lindley's possession.

Syn.: *Humboldtia convoluta* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Pleurothallis papillisepala* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 7: 109, 1920.
Ety.: From the Latin *papillisepalus*, "with papillose sepals," referring to the pubescent sepals.

Syn.: *Pleurothallis espinalii* Luer, Orquideología 22: 122, 1999.
Ety.: Named in honor of Sigifredo Espinal T., co-collector of this species.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 5-12 cm long, with a long, tubular sheath below the middle and 2-3 others at the base. **Leaf** erect, coriaceous, narrowly linear-elliptical with the sides more or less incurved when dried, subacute to obtuse, 9-18 cm long including a petiole ca. 1 cm long, 0.8-1.2 cm wide, gradually narrowed below into the petiole. **Inflorescence** a loose, distichous, simultaneously several-flowered raceme, 9-10 cm long including the peduncle, flowering nearly to the base, subtended by a narrow spathe 7-10 mm long from an annulus 2 mm below the apex of the ramicaul; floral bracts tubular, 2-4 mm long; pedicels 2-3.5 mm long; ovary 2 mm long; **sepals** greenish white or yellow, with or without purple spots, glabrous to pubescent within above the middle, the dorsal sepal oblong-obovate, obtuse, 7-8 mm long, 2.5-3.25 mm wide, 3-veined, the lateral sepals obovate, oblique, obtuse, 7-8 mm long, 2.5-3 mm wide, 3-veined, connate 3.5-4.5 mm, with a small mentum below the column-foot; **petals** translucent, obovate, 3.5-4.5 mm long, 1.75-2.25 mm wide, with the apex subtruncate, obscurely bilobed, carinate externally along the purple midvein, with an accessory vein to either side; **lip** marked with purple-brown, arcuate, oblong-subtrilobed, subpandurate, 3.75 mm long expanded, 2 mm wide expanded, the disc minutely subverrucose, the apex broadly rounded with minutely irregular margins, the sides erect and broadly rounded below the middle, the base subunguiculate, subtruncate, hinged to the column-foot; **column** stout, 2.5 mm long, denticulate at the apex, the foot 1.5 mm long, the anther, rostellum and stigma ventral.

COLOMBIA: **Cauca**: Popayán, near Río Blanco, 1843, *Hartweg 1414* (Holotype: K; Isotypes: AMES, BR, W); Highlands of Popayán, Piendamo, alt. 1600-1800 m, *F.C. Lehmann 4518* (holotype of *P. papillisepala*: K; isotypes: AMES, HB, LE, US), C. Luer illustr. 16280, 16994; near Popayán, alt. 5,000 ft., 12 May 1878, *F.C. Lehmann s.n.* (W); Popayán, near Tacuayó, alt. 1500-1800 m, 27 Oct. 1882, *F.C. Lehmann 2055* (K); El Tambo, alt. 1700 m, 20 Sept. 1939, *K. von Sneidern 2037* (S); Piendamó, alt. 2200 m, 14 Oct. 1968, *Sigifredo Espinal T. & J.E. Ramos 3041* (Holotype: CUVC), C. Luer illustr. 18475. Without locality, flowered in cultivation at Finca A. Neumann near Santa Bárbara, 4 May 1993, *C. Luer 16635* (MO).

This species, apparently confined to southern Colombia, is distinguished by the several-flowered, distichous raceme shorter than the narrowly linear leaves. Some are more or less convolute in the living condition. The sepals are obovate and obtuse, greenish white, and long-pubescent within. The petals are carinate externally and also obovate with the apices obscurely bilobed. The subpandurate lip is arcuate with erect, broadly rounded erect sides below the middle.

Pleurothallis crenata Lindl., Gard. Chron. 6: 207, 1846.

Ety.: From the Latin *crenatus*, "crenate," referring to the impression that the lip is crenate.

Syn.: *Humboldtia crenata* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Plant medium in size, epiphytic, presumably caespitose; roots slender. Ramicauls erect, stout, 2 cm long, enclosed by loose, tubular sheaths. **Leaf** erect, coriaceous, elliptical, obtuse, sessile, 8 cm long, 3 cm wide, cuneate below into the base. **Inflorescence** a single, erect, loose, subflexuous, simultaneously several-flowered raceme, 7.5 cm long including the peduncle ca. 1 cm long, no doubt subtended by a spathe, from the apex of the ramicaul at the base of the leaf; floral bracts infundibular, 5 mm long; pedicels 12-20 mm long; ovary 2.5 mm long, round in cross section; **sepals** dull dark purple, fleshy, thickly carinate, microscopically pubescent externally and within, the dorsal sepal obovate-oblong, concave, obtuse, 14 mm long, 4 mm wide, the lateral sepals connate to near the middle into a bifid, elliptical lamina, 13 mm long, 7 mm wide, the apices acute; **petals** yellow with purple spots on the border, minutely verrucose, spathulate, subacute, unguiculate, 8 mm long, 4 mm wide, 1 mm wide below the middle, 3-veined; **lip** yellow with purple spots on the border, thick, fleshy, oblong-subtrilobed, 4.5 mm long, 1.5 mm wide unexpanded, the apex rounded, minutely denticulate-erose, densely verrucose, the sides erect below the middle, broadly rounded, the disc minutely verrucose and transversely rugose, the base broad, membranous, truncate, with a lobule at both angles, hinged to the column-foot; **column** stout, longitudinally winged, denticulate-erose at the apex, 3.5 mm long, the foot thick, 2 mm long, the anther and the stigma ventral.

MEXICO: Without collection data, presumably cultivated at Kew, imported by *C. Loddiges 82* (Holotype: K), C. Luer illustr. 19019.

To my knowledge, this species has not been re-collected since the original introduction by Loddiges in the mid-nineteenth century. It is certainly rare, if it still exists in Mexico. Because the colors are so vividly described and with a colored illustration on the herbarium sheet, and because a dried flower glued to the sheet proved to be beautifully preserved (although the parts are fractured), the plant must have flowered in cultivation at Kew.

It is most closely allied to the Colombian *P. lehmanneptis*, which, in turn, is related to the widely distributed *P. immersa*. *Pleurothallis crenata* is characterized by a short ramicaul; an elliptical, subpetiolate leaf; a several-flowered raceme about as long as the leaf; and long-pedicellate flowers with fleshy, carinate sepals, spathulate petals, and an oblong, verrucose, lip with tall, rounded sides.

In the *Orchids of Panama* three species are erroneously listed as synonyms of *P. crenata*. They are synonyms of the common and widely distributed *P. tripterantha* Rchb.f. Although both *P. crenata* and *P. tripterantha* are similar in size with short ramicauls and carinate sepals, the latter is most easily identified by the shorter pedicels and winged ovaries that are continuous with the keels of the sepals. The petals and lip indicate no close relationship.

Pleurothallis cypripedioides Luer, Selbyana 1: 70, 1975.

Ety.: Named for the superficial resemblance of the flower to the genus *Cypripedium* L.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 8-18 mm long, enclosed by 2-3 tubular sheaths. **Leaf** erect to suberect, coriaceous, elliptical, subacute, 3-7 cm long including a petiole ca. 0.5 cm long, 14-18 mm wide, narrowed below into the petiole. **Inflorescence** a weak, more or less pendent, lax, distichous, flexuous, successively several- to many-flowered raceme, up to 30 cm long including the peduncle ca. 5 cm long, subtended by a spathe ca. 3 mm long from an annulus below the apex of the ramicaul; floral bracts 1.5-2.5 mm long; pedicels 4-8 mm long; ovary 2-3 mm long; **sepals** light green, suffused and mottled with purple, densely long-pubescent within with the hairs bright purple, subcarinate, the dorsal sepal elliptical, subacute, 8-10 mm long, 3-4 mm wide, 3-veined, the lateral sepals connate and adherent to the apex into a deeply concave, ovoid, obtuse synsepal, 8-10 mm long, 6 mm wide unexpanded, concave centrally; **petals** translucent, obovate to spathulate, subacute to subtruncate, unguiculate, 2.5-3 mm long, 1-1.5 mm wide, closely 3-veined, and minutely verrucose along the veins; **lip** dull yellow, sagittate-trilobed, arcuate, obtuse at the apex, 3 mm long, 2.5 mm wide expanded, the lateral lobes erect, rounded at the tips with intramural calli within the margins, the disc with purple verrucae toward the unguiculate base, the claw 0.5 mm long, hinged to the column-foot; **column** yellow-green, winged above the middle, denticulate at the apex, 3-4 mm long, the foot 1-1.5 mm long, the anther, rostellum and stigma ventral.

ECUADOR: **Napo**: epiphytic near Río Payamino, west of Coca, alt. 350 m, flowered in cultivation, 5 Nov. 1974, *F. Fuchs s.n.* (Holotype: SEL), C. Luer illustr. 107. **Morona-Santiago**: new road east of Méndez, Cordillera del Cutucú, alt. 1000 m, 5 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12648* (K, MO); between Mendez and Morona, alt. 950 m, 17 Jan. 1989, *C. Luer, J. Luer, P. & A. Jesup 13950* (MO); between Mendez and Morona, alt. 800-1000 m, 22 Nov. 1989, *C.H. Dodson et al. 18028* (MO); Dos Monos, south of Macas, cultivated in Chamblee, GA, May 1992, *F L Stevenson 90-0903-3* (MO). **Zamora-Chinchipe**: between Patuca and Santiago, alt. ca. 1600 m, cultivated in Chamblee, GA, 19 Jan. 1988, *F L Stevenson 88-0119-1* (MO).

This unmistakable little species, apparently endemic on the eastern slopes of the Andes of southeastern Ecuador, is characterized by the caespitose habit with abbreviated ramicauls; an obovate, petiolate leaf; and a weak, more or less pendent, lax raceme of successive flowers. Filled within with long, bright purple hairs, the purplish synsepal is deeply concave, suggesting the pouch of a minute lady's slipper with the dorsal sepal above as a lid.

Pleurothallis dilatata C.Schweinf., Bot. Mus. Leafl. 10: 177, 1942.

Ety.: From the Latin *dilatatus*, "dilated," referring to the labellum.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 6-7 cm long, with a loose, tubular sheath below the middle and 2 at the base. **Leaf** erect, thickly coriaceous, oblong, obtuse, 7-7.5 cm long, 1.5 cm wide in the dry state, narrowed below into a subpetiolate base. **Inflorescence** a loose, distichous, simultaneously several-flowered raceme, 11-13 cm long including the peduncle 1.5 cm long, subtended by a narrow spathe 5 mm long from the base of the leaf or apex of the ramicaul; floral bracts 5-7 mm long; pedicels 3 mm long; ovary 3 mm long; **sepals** pale yellow-green, microscopically ciliate and pubescent within above the middle, the dorsal sepal oblong, obtuse, 10 mm long, 3 mm wide, 3-veined, the lateral sepals oblong, oblique, obtuse, connate into an oblong lamina 9 mm long, 5 mm wide, 6-veined, connate 5 mm, with a distinct mentum below the column-foot; **petals** translucent, obovate-spathulate, 6 mm long, 2.75 mm wide, 3-veined, with the apex broadly rounded; **lip** yellow-green, subarcuate, oblong-subtrilobed, 6 mm long, 2 mm wide expanded, the sides erect and broadly rounded with thin, intramarginal lamellae on the middle third, the apical third narrowed, rounded, minutely verrucose, the basal third narrowed, subunguiculate, truncate, hinged to the column-foot; **column** slender, 3.5 mm long, the foot 2 mm long, the anther, rostellum and stigma ventral.

PERU: **Huancavelica**: Tayacaja, Montepungo, east of Surcubamba, alt. 3000 m, 13 June 1939, *H.E. Stork & G.B. Horton 10388* (Holotype: UC; Isotype: AMES), C. Luer illustr. 18947.

This species, closely allied to the Colombian *P. convoluta*, is known only from the type-collection. It is characterized by a narrowly oblong leaf that is wider than the linear leaf of *P. convoluta*. The loose, simultaneously flowered raceme surpasses the leaf, instead of being shorter than the leaf. The sepals are larger and microscopically pubescent instead of long-pubescent. The petals are similar but proportionately larger; and the lips are also similar with the middle third dilated with intramural lamellae.

Pleurothallis diminuta Luer, Phytologia 49: 204, 1981.

Ety.: From the Latin *diminutus*, "made small," referring to the habit.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 15-25 mm long, enclosed by a long, tubular sheath and 2-3 others at the base. **Leaf** erect, coriaceous, elliptical, petiolate, subacute to obtuse, 12-25 mm long including a petiole 4-6 mm long, 6-9 mm wide, cuneate below into the petiole. **Inflorescence** a single flower, produced successively in a fascicle at the apex of the ramicaul; peduncle 5 mm long, subtended by a narrow spathe 3 mm long from the apex of the ramicaul; floral bract 1-1.5 mm long; pedicel 1.5 mm long; ovary 2 mm long; **sepals** dull yellow, mottled or spotted with purple, glabrous, the dorsal sepal oblong-obovate, obtuse, 6 mm long, 2.5 mm wide, 3-veined, the lateral sepals connate to near the apex into an ovoid synsepal, concave below the middle to form a large mentum with the column-foot, recurving above the middle, obtuse, 6 mm long, 3.25 mm wide; **petals** translucent yellow with purple midvein, elliptical-obovate, rounded at the apex, narrowed toward the base, 3.25 mm long, 1.5 mm wide, 1-veined; **lip** purple, arcuate, sagittate-trilobed, obtuse, unguiculate, 3 mm long, 1.2 mm wide expanded, the sides (lateral lobes) erect and broadly rounded below the middle, with longitudinal, intramural carinae, narrowed below the lateral lobes into an unguiculate base 1 mm long, hinged to the column-foot; **column** green, slender, 2 mm long, the anther-cap protruding beyond the clinandrium, the foot about as long, the anther, rostellum and stigma ventral.

ECUADOR: **Loja**: cloud forest south of Yangana, alt. 2450 m, 12 May 1981, *C. Luer, J. Luer & D. D'Alessandro 6195* (Holotype: SEL).

This small relative of *P. brenneri* is apparently uncommon and local in southeastern Ecuador. It is distinguished by the small habit with elliptical, petiolate leaves borne by more or less equally long ramicauls. The flowers are produced singly and successively by short peduncles in a fascicle at the base of the leaf. The sepals are glabrous, the laterals forming a large mentum with the column-foot; the petals are obtuse and single-veined; and the lip is long-unguiculate.

Pleurothallis erucosa Luer & Escobar, Orquideología 21: 88, 1998.

Ety.: From the Latin *erucosus*, "full of caterpillars," in allusion to the raceme of pubescent flowers within the concavity of the revolute leaf.

Plant medium in size to large, presumably epiphytic, caespitose; roots slender. Ramicauls erect, stout, 15-30 cm long, compressed above, enclosed by a long, loose, tubular sheath below the middle, and 2-3 other sheaths at the base. **Leaf** erect, coriaceous, broadly elliptical, rigidly convex with revolute sides, with the obtuse apex shortly acute and decurved, mottled with purple within, petiolate, 8-11 cm long, ca. 4 cm wide unexpanded, 5-8 cm wide expanded, rounded below, abruptly contracted into a stout petiole 1 cm long. **Inflorescence** an erect, congested, distichous, simultaneously several-flowered raceme, 4-5 cm long, borne behind the leaf by a slender peduncle ca. 2 cm long, subtended by a spathe 1 cm long, from an annulus 5 mm below the apex of the ramicaul; floral bracts 3 mm long; pedicels 5-6 mm long; ovary 3 mm long; **sepals** glabrous and yellow externally, yellowish white within, covered with a long, dense, white pubescence above the base, the dorsal sepal obovate, obtuse, 10 mm long, 4.5 mm wide, 3-veined, connate to the lateral sepals for less than 1 mm, the lateral sepals connate into an obovate synsepal, 8 mm long, 7 mm wide, broadly rounded at the apex, forming a small mentum below the column-foot; **petals** translucent yellow, spathulate, 4 mm long, 2.25 mm wide at the apex, the apex broadly truncate, narrowly unguiculate for the lower half; **lip** brown, oblong-ovate, arcuate, 4.5 mm long, 1.75 mm wide, the apex rounded, verrucose, denticulate, the disc with a pair of longitudinal, verrucose calli within the margins above the middle, the base broadly unguiculate, truncate, minutely lobulate at the corners, hinged to the column-foot; **column** greenish white, shallowly winged above the middle, denticulate at the apex, 4.5 mm long, the anther and stigma ventral, the foot 2.5 mm long.

COLOMBIA: Without collection data, flowered in cultivation by M. and O. Robledo at La Ceja, 28 Jan. 1978, *C. Luer 2341* (Holotype: SEL).

This species is apparently rare, known only from a cultivated plant. It is obviously related to *R. imraei*, but vegetatively the large, egg-shaped leaf is distinct with the markedly convex dorsal surface. Consequently, it is deeply concave from behind. The raceme is borne up the back of the leaf within the cavity from the base of a distinct, stout petiole. It appears as if some fuzzy caterpillars had entrenched themselves within a rolled-up leaf, a sight familiar to most of us. The sepals are covered by a dense, long-villous, white pubescence within; the petals are spathulate and truncate, and narrowly unguiculate on the lower half; and the arcuate lip is denticulate and verrucose at the apex, and with a similar pair of calli on the disc.

Pleurothallis flexuosa (Poepp. & Endl.) Lindl., Bot. Reg. 28: Misc. 69, 1842.

Bas.: *Specklinia flexuosa* Poepp. & Endl., Nov. Gen. & Sp. 1: 52, 1835.
Ety.: From the Latin *flexuosus*, "flexuous or zigzag," referring to the raceme.

Syn.: *Pleurothallis kefersteiniana* Rchb.f., Bot. Zeitung (Berlin) 10: 673, 1852.
Ety.: Named for Herr Keferstein of Cröllwitz in whose collection this species was cultivated.

Syn.: *Pleurothallis elachopus* Rchb.f., Gard. Chron. 1: 109, 1884.
Ety.: From the Greek *elachopus*, "short-footed," referring to the ramicauls shorter than the leaves.

Syn.: *Humboldtia flexuosa* (Poepp. & Endl.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Pleurothallis remotiflora* C.Schweinf., Amer. Orchid Soc. Bull. 21: 108, 1952.
Ety.: From the Latin *remotiflorus*, "with distant flowers," referring to the raceme.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1-5 cm long, enclosed by a long, tubular sheath and 2-3 shorter sheaths above the base. **Leaf** erect, coriaceous, narrowly elliptical, acute to subacute, 5-14 cm long including an indistinct petiole 1-2 cm long, 0.5-2 cm wide, gradually narrowed below into the subpetiolate base. **Inflorescence** a weak, erect, suberect to arching, lax, distichous, flexuous, successively several- to many-flowered raceme, up to 30 cm long including the peduncle 5-15 cm long, subtended by a spathe 3-5 mm long from an annulus below the apex of the ramicaul; floral bracts 3-5 mm long; pedicels 5-15 mm long; ovary 3-5 mm long; **sepals** light green, light yellow to olive or tan, mottled, spotted or suffused with purple, brown or black, densely long-pubescent within with the hairs white or purple, subcarinate, the dorsal sepal obovate, subacute to obtuse, 6-14 mm long, 2.25-4 mm wide, 3-veined, the lateral sepals connate and adherent to the apex into a deeply concave, ovoid, obtuse synsepal, 5-13 mm long, 4-7 mm wide, concave centrally; **petals** yellow, orange, purple or black, spathulate, concave, rounded at the apex, unguiculate, 2.5-4.5 mm long, 1.75-3 mm wide, closely 3-veined, minutely verrucose along the veins externally; **lip** yellow or green,

spotted with purple or brown, sagittate-trilobed, arcuate, 2-3.5 mm long, 1-1.5 mm wide, the lateral lobes erect, rounded at the tips, the disc with a pair of longitudinal calli, one on each lobe, either near the middle or along the edge, with a midline callus extending forward from the claw, cellular-glandular, more or less grooved centrally, the apical lobe usually purple, ovate, sometimes with a constriction between the lateral lobes and the midlobe, the claw 0.5 mm long, hinged to the column-foot; **column** yellow-green, spotted or suffused with purple, winged above the middle, denticulate at the apex, 2.5-4 mm long, the foot 0.5-1 mm long, the anther, rostellum and stigma ventral.

PERU: subandean forest, Cuchero, near the Finca Pampayaco, Nov. 1829, *E. Poeppig 1515* (Holotype: W; Isotype: BR). *Amazonas*: Bongará, between Río Utcubamba and Pomacochas, alt. 1810 m, 2 Feb. 1964, *P.C. Hutchison & J.K. Wright 3971* (AMES, UC). **San Martín**: between Tingo Maria and Huánuco, alt. 625-1100 m, 30 Oct. 1949-19 Feb. 1950, *H.A. Allard 21958* (AMES, US).
ECUADOR: **Tungurahua**: between Río topo and Hda. Victoria, alt. 1230 m, 23 Mar. 1939, *C.W. Penland & R.H. Summers 233* (holotype of *P. remotiflora*: AMES). **Napo**: along Río Napo near Misahualli, alt. 450 m, Feb. 1985, *A. Suarez 191* (MO); around Bermejo oil fields, north of Lumbaqui, alt. 850 m, 9 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11727, 11749, 11773* (MO); between Puerto Napo and Puyo, alt. 600 m, 23 June 1987, *C. H. Dodson & M. Chase 17248* (MO); between Archidona and Coca, alt. 1000 m, 17 Feb. 1990, *S. Dalström & T. Höijer 1360* (MO); Campamento Guarumales, alt. 1650 m, 24 Mar. 1991, *C. Luer, J. Luer, A. Andreetta & L. Morocho 15243* (MO). **Morona-Santiago**: between San Juan Bosco and Gualaceo, alt. 2350 m, 28 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10995* (MO); below Limón, Río Yunganza, alt. 1600 m, 17 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11865* (MO); pass north of Gualaquiza, alt. 1800 m, 30 Jan. 1986, *S. Dalström & T. Höijer 1122* (MO); southeast of Sigsig, near Chiguinda, alt. 1600 m, 13 Jan. 1989, *C. Luer, J. Luer, A. Jesup, P. Jesup, A. Hirtz & S. Ortega 13877* (MO); Cordillera del Cutucú, alt. 800 m, Aug. 1989, *A. Hirtz 4533* (MO); between Mendez and Morona, alt. 800-1000 m, 22 Nov. 1989, *C. H. Dodson, N. Williams, E. Hagsater & M. Whitten 17767* (MO). **Zamora-Chinchipe**: Cordillera del Condor, east of Paquisha, alt. 1200 m, 19 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11926* (MO); Cordillera del Condor, east of Los Encuentros, alt 1550 m, 18 May 1988, *C. Luer, A. Hirtz, A. Andreetta & W. Teague 13461* (MO); upstream from Valladolid, alt. 16 Apr. 1986, *D. D'Alessandro 585A* (MO); south of Zamora along Río Jamboe, alt. 1250 m, 22 Jan. 1992, *C. Luer, J. Luer, A. Jesup, P. Jesup & A. Hirtz 16109 (small), 16110 (large)* (MO); above Zamora, road to Parqué Nacional Podocarpus, alt. 1000 m, 24 Jan. 1992, *C. Luer, J. Luer, A. Jesup, P. Jesup & A. Hirtz 16140* (MO).
COLOMBIA: **Antioquia**: Porcesito, Río Medellín, alt. 1100 m, 16 Apr. 1945, *W.H. Hodge 6801* (AMES); north of Medellín, alt. 1600 m, 9 Mar. 1989, *S. Dalström 1259* (MO). **Putumayo**: Río Pepino near Mocoa, alt. 850 m, 6 Jan. 1957, *M. Ospina & J.M. Idrobo 114* (AMES, COL); Region of Mocoa, Río Rumyaco, alt. 600 m, 2 Jan. 1963, *M.L. Bristol 465* (AMES); collected by H. Angarita, cult. at Colomborquídeas, Apr. 1991, *C. Luer 15262* (MO).
VENEZUELA: "Caracas," alt. 5,000 ft., Oct. 1850, cultivated by Böttger for Keferstein (560), *H. Wagener s.n.* (holotype of *P. kefersteiniana*: W). **Aragua**: Parqué Nacional Henry Pittier, Quebrada Río Hondo, alt. 1000 m, 30 Apr. 1972, *J.A. Steyermark & V. Carreño E. 105901* (AMES, VEN). **Miranda**: Parqué Nacional Guatopo, alt. 800 m, 25 Nov. 1961, *J.A. Steyermark 90055* (AMES, VEN); Guatopo, cultivated 12 Apr. 1981, collected by *D. Cathcart 78-655* (SEL), C. Luer illustr. 6010.
BOLIVIA: **La Paz**: Sud Yungas, east of Coroico, alt. 1970 m, 25 Nov. 1992, *C. Luer, J. Luer, R. Vásquez et al. 16494* (MO). **Cochabamba**: near Villa Tunari, alt. 350 m, 30 Jan. 1997, *C. Luer, J. Luer, R. Vásquez et al. 18313* (MO).
Without collection data, cultivated at Hamburg, June 1871, (holotype of *P. elachopus*: W).

This easily recognized species is variable in size and color in its wide distribution through the Andes from Venezuela into central Bolivia. The ramicauls are distinctly shorter than narrowly elliptical leaves. A long, loose, flexuous raceme bears successively gaping flowers that are densely villous within. The color of the hairs varies from white to bright purple, and the color of the flower varies through all the purples to pure yellow to nearly pure black. The petals are spathulate, and the small lip is longitudinally three-lobed with a midline callus, and unguiculate.

Two distinct variations grow intermixed along the Río Jamboe in southern Ecuador. One bears small flowers with gray and black sepals six millimeters long with white hairs; the other bears larger flowers with purple-spotted sepals 12 millimeters long with purple hairs. In the small flowers, the longitudinal carinae of the lateral lobes of the lip are near the margin and partially intramural; and the apical lobe is suborbicular with a constriction between the lobe and the lateral lobes. In the large flowers, the carinae are about midway between the central callus and the margins; and the apical lobe is ovate and indistinctly demarcated from the lateral lobes. These differences occur, seemingly at random, throughout the distribution.

Pleurothallis fornicata Luer, Lindleyana 11: 160, 1996.

Ety.: From the Latin *fornicatus*, "arcuate," referring to the inflorescence.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 5-7 cm long, mostly enclosed by 3 tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, acute, 10-15 cm long including an indistinct petiole 1-2 cm long, 1.5-2 cm wide, gradually narrowed below into the petiole. **Inflorescence** a loose, distichous, successively many-flowered, gradually lengthening raceme, up to 30 cm or more long including the peduncle ca. 12 cm long, subtended by a narrow, deciduous spathe 5 mm long, ca. 4 mm below the abscission layer (the apex of the ramicaul); floral bracts oblique, acute, 7-8 mm long; pedicels 8-11 mm long; ovary 2 mm long; **sepals** greenish white with dark purple-brown spots, long-pubescent within, fleshy carinate, the dorsal sepal elliptical, acute, concave, 12-14 mm long, 3-4 mm wide, 3-veined, the lateral sepals connate to near the apex into an ovate, concave, acute synsepal, 11-14 mm long, 6 mm wide, 6-veined, with a distinct mentum just below the middle to accommodate the apex of the lip; **petals** translucent, dotted with purple, cuneate, truncate, 3.5-4 mm long, 1 mm wide below the middle, 2 mm wide across the apex, slightly tricarinate externally along the veins; **lip** green, spotted with purple-brown, rigidly arcuate, oblong, obtuse, unguiculate, 3.75 mm long expanded, 2 mm wide expanded, the disc shallowly concave, the sides erect with a marginal callus that ends before the unguiculate base, hinged to the column-foot; **column** semiterete, denticulate to fringed at the apex, spotted with brown, 4 mm long, the foot 2 mm long, the anther, rostellum and stigma ventral.

ECUADOR: **Loja**: Numbala above Valladolid, alt. 1700-2000 m, July 1986, *D. D'Alessandro 732* (Holotype: MO).
PERU: **Amazonas**: Bongará, southeast of Yambrasbamba, alt. 2100-2400 m, 25 June 1962, *J.J. Wurdack 1046* (AMES, US); Chachapoyas, alt. 1700 m, 28 May 1963, *A. López, A. Segástegui & V. Collantes 4281* (AMES, HUT); Bongará, Shilla, alt. ca. 1900 m, 10 May 1981, *K. Young & M. Eisenberg 459* (MO, NY); same area, collected by B. Würstle, flowered in cultivation at Spielberg, Germany, 7 Sept. 1981, *C. Luer 6463* (SEL).

This species, found in southern Ecuador and northern Peru, appears similar to the Brazilian *P. arcuata* Lindl., and a collection of it was identified as *P. arcuata* by Schweinfurth in the supplement to the *Orchids of Peru*.

In habit, *P. fornicata* is similar to *P. arcuata* with ramicauls shorter than the acute (instead of obtuse), elliptical leaves, and a gradually lengthening, flexuous raceme of successive flowers. The brown-spotted flowers are also similar, but the dorsal sepal remains concave without reflexion of the sides. The synsepal has a distinct mentum near the middle, and the cuneate petals are abruptly truncate at the apex. The petals of *P. arcuata* are trilobulate and minutely verrucose externally.

Pleurothallis gelida Lindl., Bot. Reg. 27: Misc. 91, 1841.

Ety.: From the Latin *gelidus*, "cold," in allusion to the frosty appearance of the flowers.

Syn.: *Pleurothallis univaginata* Lindl., Ann. Mag. Nat. Hist. ser. 3, 1: 326, 1858.
Ety.: From the Latin *univaginatus*, "one-sheathed," referring to the ramicaul.

Syn.: *Pleurothallis polyliria* Endres & Rchb.f., Gard. Chron. 1483, 1871.
Ety.: From the Greek *polylyra*, "many lyres," alluding to the lyre-shaped lips.

Syn.: *Anathallis hebesepala* Barb.Rodr., Gen. Sp, Orch. Nov. 2: 75, 1882.
Ety.: From the Greek *hebesepalon*, "sepals with hairs of puberty," alluding to the pubescent sepals.

Syn.: *Humboldtia gelida* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Humboldtia univaginata* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 668, 1891.

Syn.: *Pleurothallis puberula* Rolfe, Bull. Misc. Inform. 100, 1893, non Klotzsch, 1854.
Ety.: From the Latin *puberulus*, "pubescent," referring to the sepals.

Syn.: *Pleurothallis hebesepala* (Barb.Rodr.) Cogn., Fl. Bras. 3(4): 567, 1896.

Syn.: *Pleurothallis chiquindensis* Lehm. & Krzl., Bot. Jahrb. Syst. 26: 438, 1899.
Ety.: Named for the community of Chiquinda in Ecuador where the specimen was collected.

Syn.: *Pleurothallis tenuispica* Schltr., Repert. Spec. Nov. Regni Veg. 14: 133, 1915.
Ety.: From the Latin *tenuispicus*, "thin-spiked," referring to the racemes.

Syn.: *Pleurothallis chiriquensis* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 17: 19, 1922.
Ety.: Named for the Panamanian province of Chiriquí where the specimen was collected.

Syn.: *Pleurothallis pidax* Luer, Selbyana 5: 174, 1979.
Ety.: From the Greek *pidax*, "a fountain," referring to the sprays of flowers.

Plant medium to large, epiphytic to terrestrial, densely caespitose; roots coarse. Ramicauls stout, erect, 5-30 cm long, mostly enclosed by 3 loose, tubular sheaths. **Leaf** erect, coriaceous, elliptical-oblong, obtuse, 7-27 cm long including a petiole 1.5-4 cm long, 2.5-12 cm wide, cuneate below into the petiole. **Inflorescence** 1-5 loose, distichous, simultaneously many-flowered racemes, up to 20 cm long including the peduncle 1-3 cm long, subtended by a spathe 1-2 cm long; floral bracts oblique, acute, 3 mm long; pedicels 2 mm long; ovary 2 mm long; **sepals** white to greenish white with a dense, white pubescence within above the middle, the dorsal sepal elliptical-ovate, obtuse, concave, 5-8 mm long, 2.25-3 mm wide, 3-veined, the lateral sepals elliptical-oblong, obtuse, 5-7 mm long, 1.25-2.5 mm wide, connate to about the middle, forming a mentum with the column-foot; **petals** translucent, obovate-elliptical, 3-3.5 mm long, 1.75-2 mm wide, 3-veined, the apex obtuse and minutely erose, sometimes suffused with rose; **lip** white, subpandurate, thin, arcuate, 2-2.5 mm long expanded, 0.75-1.25 mm wide, the apex broadly rounded to truncate, disc shallowly concave between a low pair of calli on the middle third, the sides erect below the middle, the base truncate, hinged to the column-foot; **column** semiterete, longitudinally winged, variously minutely denticulate at the apex, 2 mm long, the foot 1.5 mm long, the anther, rostellum and stigma ventral.

A representative list:
JAMAICA: Without collection data, obtained by *Messrs. Loddiges s.n.* (Holotype: K); between Iron Face and Chester Vale, alt. 3,200 ft., 15 Feb. 1900, *W. Harris 7836* (C, K).
CUBA: Oriente: near Monte Verde, 1856-57, *C. Wright 656* (holotype of *P. univaginata*: K; isotypes: AMES, BREM, HAC, NY, P); Sierra de Nipe, alt. 450-550 m, 10 Dec. 1909, *J.A. Schafer 3135* (AMES, K, NY).
UNITED STATES: **Florida**: Collier Co., Fahkahatchee Swamp, 21 Dec. 1945, *L.J. Brass 15807* (US).
PUERTO RICO: near Larco near Guajalara, 16 Feb. 1887, *P. Sintenis 6216* (AMES, BM, BR, C, K, US, W); Maricao, Alto de Descanso, alt. 720-750 m, 21 Feb. 1986, *J.D. Ackerman 2230* (UPRRP).
DOMINICAN REPUBLIC: **Barahona**: 28 May 1913, *Father M. Fuertes 1388b* (AMES, BM, K, NY, US, W). **La Vega**: Bonao, foot of Loma Pequera, alt. 200 m, 8 Feb. 1929, *E.L. Ekman H-11478* (AMES, K, NY, S).
HAITI: Marmelade, alt. 2,750 ft., 31 July 1903, *G.V. Nash & N. Taylor 1243* (NY).
MEXICO: Candagallo, 1834, *A. Richard* (W).
PANAMA: **Chiriquí**: without locality, alt. 4,000-5,000 ft., Feb., *Powell 227* (holotype of *P. chiriquensis*: destroyed at B).
NICARAGUA: **Jinotega**: Santa Gertrudis, alt. 1000 m, 20 Jan. 1980, *M. Araquistain & P. Moreno 848* (NIC, LE).
BELIZE: **Cayo**: ridge above Raspaculo River, alt. 600-720 m, 13 Dec. 1996, *T. Hawkins 1212* (MO).
COSTA RICA: **Puntareanas**: Jan. 1854, *I. Scherzer s.n.* (W). Without locality, ca. 1867, *A. Endres 163, 226* (W). Without locality, obtained by W. Wilson Saunders in 1871 from *A. Endres s.n.* (holotype of *P. polylyria*: W; isotype: K).
COLOMBIA: **Nariño**: Ricaurte, alt. 1300 m, 7 Apr. 1941, *K. von Sneidern A. 474, A.514* (AMES). **Valle del Cauca**: La Elsa, hoya del Río Digua (Dagua?), alt. 1000-1200 m, 9 Nov. 1943, *J. Cuatrecasas 15305* (AMES, COL, US).
ECUADOR: **Carchi**: between Tulcán and Maldonado, alt. 2200-2400 m, 28 Feb. 1974, *G. Harling & L. Andersson 12318* (GB). **Pichincha**: near San Florenzio and Conzacoto, May. 1885, *A. Sodiro 7* (holotype of *P. tenuispica*: destroyed at B, lectotype here designated: QPLS). **Los Ríos**: Río Palenque, south of Santo Domingo, alt. 200 m, Mar. 1976, *C. Luer & R. Kent 2277* (holotype of *P. pidax*: SEL). **Cotopaxi**: between Quevedo and Latacunga, alt. 1200-1300 m, 7 Apr. 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Øllgaard 3110, 3111* (AAU, AMES, S). **Morona-Santiago**: slopes of the Andes east of Sigsig, alt. 1800-2000 m, *F.C. Lehmann 6506* (holotype of *P. chiquindensis*: destroyed at B?). **Zamora-Chinchipe**: between Loja and Zamora, alt. 1600 m, 18-21 Apr. 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Øllgaard 3670, 4036, 4144* (AAU, S).
PERU: **Huánuco**: Pampayacu, 20 Jan. 1927, *R. Kamehira 322* (AMES).
BOLIVIA: **La Paz**: Larecaja, Mapiri, San Carlos, near Sarampiuni, alt. 600 m, 10 Feb. 1927, *O. Buchtien 533* (US).
BRAZIL: **Rio de Janeiro**: near Rodeiro, *J.B. Rodrigues s.n.* (holotype of *P. hebesepala*: P)
Without collection data, Jan. 1892, received from *F.W. Moore s.n.* (holotype of *P. puberula*: K).

This large species is probably the most widely distributed of all pleurothallids, frequent or common throughout the Antilles, Central and South America into southern Brazil. Populations are variable vegetatively and florally, acquiring numerous names. A futile attempt was made to recognize at least some of the named variations, but too many trivia interfered. The above citation of specimens has been limited to significant and representative collections.

The species is characterized by a large, robust habit with stout ramicauls bearing a large leaf and usually more than one raceme of numerous whitish or greenish flowers. The sepals are obtuse and densely pubescent inside. The petals are thin and obtuse. The lip is also thin, subpandurate and arcuate with a pair of parallel calli in the middle third. The apex is more or less broadly truncate.

Pleurothallis hamiltonii Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 64: 61, 1997.

Ety.: Named in honor of A.C. Hamilton, co-collector of this species.

Plant large, presumably epiphytic, presumably caespitose; roots unknown. Ramicauls stout, erect, more than 12 cm long, undoubtedly with tubular sheaths. **Leaf** erect, coriaceous, elliptical, obtuse, 14 cm long, 6.5 cm wide, cuneate below into the sessile base. **Inflorescence** a strict, erect, loose, distichous, simultaneously many-flowered raceme, up to 28 cm or more long including the peduncle ca. 10 cm long, subtended by a broad spathe ca. 2 cm long; floral bracts tubular, oblique, 5-7 mm long; pedicels 3-4 mm long; ovary 3 mm long; **sepals** (colors not noted), long-pubescent within, subcarinate, the dorsal sepal narrowly ovate, acute, 19 mm long, 4 mm wide, 3-veined, the lateral sepals narrowly ovate, acute, 19 mm long, 3.75 mm wide, 3-veined, connate 7 mm to near the middle and shallowly concave, with a basal mentum with the column-foot; **petals** elliptical, acute, entire, 9.5 mm long, 2.8 mm wide, subunguiculate toward the base; **lip** ovate, arcuate, unguiculate, 7 mm long, 3.5 mm wide, the apex narrowly obtuse with a low, midline callus, the sides broadly rounded and erect in the middle third, unguiculate in the lower quarter, hinged to the column-foot; **column** semiterete, denticulate at the apex, 5 mm long, the foot 2 mm long, the anther, rostellum and stigma ventral.

PERU: **San Martín**: Dist. Huallaga, valley of Río Apisoncho, 30 km above Jucusbamba, alt. 3200 m, 5 Aug. 1965, *A.C. Hamilton & P.M. Holligan 1064* (Holotype: K; Isotype: AMES), C. Luer illustr. 16389.

This species is known from a single collection made in 1965 at a high altitude in north central Peru. Unfortunately, the ramicaul has been broken off about 12 centimeters below the leaf, and no color notes were made. It is distinguished by a large, elliptical, sessile leaf far surpassed by a strict, distichous, simultaneously many-flowered raceme. The flowers are large and gaping with the sepals long-pubescent within. The petals are narrowly acute, and the lip is narrowly obtuse at the apex and unguiculate at the base with erect sides at the middle.

Pleurothallis hamiltonii is most similar to *P. scabrata*, but differs in having sepals pubescent within, entire petals, and a lip without calli or basal lobules.

Pleurothallis immersa Linden & Rchb.f., Bonplandia 3: 224, 1855.

Ety.: From the Latin *immersus*, "immersed," referring to the peduncle embedded in the sulcus of the leaf.

Syn.: *Pleurothallis krameriana* Rchb.f., Hamb. Gartenzeitung 21: 294, 1865.
Ety.: Dedicated to chief-gardener Kramer who cultivated many species for Reichenbach.

Syn.: *Humboldtia immersa* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Pleurothallis calerae* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 184, 1923.
Ety.: Named for Alto de la Calera de San Mateo where the species was collected.

Syn.: *Pleurothallis lasiosepala* Schltr., Repert. Spec. Nov. Regni Veg. 11: 43, 1912.
Ety.: From the Greek *lasiosepalos*, "woolly sepals," referring to the densely pubescent sepals.

Plant medium to large, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 1-4 cm long, enclosed by a loose, tubular sheath, and 2 shorter sheaths above the base. **Leaf** erect, rigidly coriaceous, elliptical, obtuse, sessile or subpetiolate, 7-17 cm long, 2.5-4.5 cm wide, cuneate below into the conduplicate base. **Inflorescence** a single, lax, distichous, subflexuous, simultaneously several- to many-flowered raceme ca. 8-10 cm long, 15-20 cm long including the peduncle 10-12 cm long, with about the lower half embedded within the sulcus of the leaf to about the middle of the leaf; no spathe visible, apparently from the apex of the ramicaul at the base of the leaf; floral bracts infundibular, 5 mm long; pedicels 5-7 mm long; ovary 2 mm long; **sepals** fleshy, yellow-orange to olive, with multiple small, black flecks, densely pubescent within, carinate externally, the dorsal sepal obovate, concave, obtuse, 12 mm long, 4 mm wide, the lateral sepals connate to near the apex into an ovate, minutely bifid, obtuse lamina, 11 mm long, 6 mm wide; **petals** translucent yellow-orange, spathulate, rounded at the apex, unguiculate, 5 mm long, 3 mm wide, 1 mm wide below the middle, with a longitudinal callus externally overlying the veins, extending beyond the apical margin; **lip** thick, fleshy, dull yellow with purple-brown spots, oblong, narrowly obtuse at the apex, arcuate, unguiculate, 4.5 mm long, 2 mm wide, the sides erect with a longitudinal callus inside the margin, the disc thickened, lightly verrucose and transversely rugose below the middle, the base truncate, bilobulate, hinged to the column-foot; **column** stout, longitudinally winged, denticulate-erose at the apex, 5 mm long, the foot thick, 1.5 mm long, the anther and the stigma ventral.

COLOMBIA: Without collection data, imported and cultivated by *J. Linden s.n.* (Holotype: W). **Norte de Santander**: Ocaña: *L. Schlim & H. Wagener 552* (K, W). **Antioquia**: without collection data, cult. by Colomborquídeas, 9 May 1993, *C. Luer 16654* (MO).
VENEZUELA: **Táchira**: La Soledad, between Barinitas and Santo Domingo, collected by K. Gaede, May 1960, *G.C.K. Dunsterville s.n.*.
PANAMA: **Chiriquí**: Llanos del Volcán, alt. 1000 m, Oct. 1976, *C. Luer & H. Butcher 1231* (SEL).
COSTA RICA: Without locality, collected ca. 1867 by A. Endres, cult. at Hamburg Botanical Garden by *Kramer s.n.* (holotype of *P. krameriana*: W); Without locality, ca. 1867, *A. Endres 282* (W). **Alajuela**: Alto de Calera de San Mateo, alt. 850 m, Jan. 1922, *A.M. Brenes 228* (holotype of *P. calerae* destroyed at B, lectotype here designated: AMES, isolectotype: NY); Rincón de la Vieja, Upala, alt. 800-900 m, 5 Feb. 1988, *G. Herrera 1515* (CR, MO). Without locality, cultivated at K, received July 1919 from *C.H. Lankester 75* (K); east of Santa María National Park, alt. 600 m, 8 Feb. 1978, *R. Liesner 5174* (MO). **Cartago**: southwest of Muñeco above Río Sombrero, alt. 1500 m, 25 Feb. 1978, *K. Utley 5871* (MO). **Guanacaste**: Abangares, northwest of Monteverde, road to Las Nubes, alt. 1450 m, 28 Jan. 1989, *W. Haber & W. Zuchowski 9032* (CR, MO). **Puntarenas**: Cordillera de Talamanca, alt. 1600 m, 25 Aug. 1983, *G. Davidse et al. 24067* (MO); Monteverde Reserve, Quebrada Veracruz, alt.1600 m, 11 Jan. 1990, *E. Bello 1761* (CR, MO).
NICARAGUA: **Jinotega**: Macizos de Peñas Blancas, alt. 1200-1300 m, *W. Stevens 11608* (MO, SEL); **Matagalpa**: Finca Bavaria, alt. 1200 m, *A. Heller 1330, 4088* (SEL).
HONDURAS: **Comayagua**: Siguatepec, alt. 3,700 ft., 30 Jan. 1933, *J.B. Edwards 354* (AMES, K).
GUATEMALA: Without locality, ca. 1867, *A. Endres 282* (W). **Alta Verapaz**: Cobán, alt. 3000 ft., *H. von Türckheim* s.n. (W); near Cobán, alt. 3,000 ft., Feb. 1878, *H. von Türckheim 58* (W); near Pansamala and Rubeleruz, alt. 4,000 ft., Feb. 1886, *H. von Türckheim 859* (holotype of *P. lasiosepala* destroyed at B; lectotype here designated: AMES 23642, illustr. of type); Santa Rosa, old road between Tactic and Salamá, alt. 6,000 ft., cultivated by O. Mittlestaedt, 13 Feb. 1990, *C. Luer 14596* (MO).
MEXICO: **Chiapas**: Lake Tziscao, alt. 1300 m, 9 Jan. 1937, *O. Nagel 5503* (MO); Montebello Lake, 7 Nov. 1961, *G. Kennedy 67* (K, UC); Ococingo, Laguna Ocotalito, alt. 980 m, 2 Feb. 1986, *E. Martínez S. 17046* (MEXU, MO). **Veracruz**: Cordoba, 1889, *H. Finch s.n.* (K). **Guerrero**: Mt. Piloncillo-Ometepejí, north of Atoyac, alt. 1300 m, 12 Jan. 1933, *O. Nagel 1946* (MO); Camino Cruz de Ocote-Jaleaca, alt. 1800 m, 16 Nov. 1984, *E. Hágsater 4836* (AMO, MO).

This species is characterized by a stout ramicaul shorter than the thickly rigid leaf. For about half the length of the leaf, the peduncle is clasped within the sulcus, so that the peduncle emerges near the middle of the leaf. The basal margins of the leaf are not decurrent on the ramicaul as in *P. circumplexa* Lindl. and relatives in subgenus *Acianthera*, in which the peduncle also arises from above the base of the leaf. Sometimes the peduncle of *P. immersa* is less tightly bound by the sulcus, and uncommonly it is free, or easily dislodged, almost to the base.

The raceme is lax and flexuous with several of the fleshy flowers open simultaneously. They are variable in size and color. The sepals are pubescent within, with the laterals connate; the petals are spathulate with a longitudinal callus externally; and the lip is arcuate with low lateral lobes along the middle above the broad, unguiculate base.

Pleurothallis imraei Lindl., Folia Orch. *Pleurothallis* 9, 1859.

Ety.: Named in honor of Dr. Imray who collected this species.

Syn.: *Humboldtia imrayi* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Pleurothallis umbraticola* Schltr., Repert. Spec. Nov. Regni Veg. 27: 56, 1929.
Ety.: From the Latin *umbraticola*, "living in the shade," referring to the habitat.

Plant medium to large, epiphytic, caespitose; roots slender, densely fasciculate. Ramicauls erect, slender, 5-28 cm long, enclosed by a loose, tubular sheath above the middle and 2-3 sheaths at the base. **Leaf** erect, coriaceous, elliptical-ovate, subacute to obtuse, more or less slightly acuminate, the base rounded, abruptly contracted into a twisted petiole 1 cm long, the blade 5-16 cm long, 3-9 cm wide. **Inflorescence** 1-3 erect, subsecund, simultaneously few- to several-flowered racemes, 3-10 cm long, borne behind the leaf by a slender peduncle 1-3 cm long, subtended by a spathe 0.5-1 cm long, borne from an annulus ca. 2 mm below the apex of the ramicaul; floral bracts 3 mm long; pedicels 4 mm long; ovary curved, 3-4 mm long; **sepals** pure yellow, mottled with purple, or pure purple to nearly black, glabrous externally, densely pubescent within above the middle, carinate, the dorsal sepal obovate, obtuse, 7-12 mm long, 2.75-4 mm wide, 3-veined, barely connate to the lateral sepals, the lateral sepals connate to near the apex into an elliptical-oblong synsepal, 6-10 mm long, 3.75-6.5 mm wide, forming a

small mentum below the column-foot, the apex shallowly bifid into 2 obtuse apices; **petals** yellow to purple-black, spathulate, more or less dilated on the labellar margin, 3-5 mm long, 1.25-2.5 mm wide, the apex broadly subtruncate to rounded, subapiculate, carinate externally along the midvein; **lip** yellow to purple-black, elliptical-oblong, arcuate, 3.5-4 mm long, 1.25-2 mm wide, the apex obtuse, denticulate, verrucose, the disc verrucose centrally, with a pair of longitudinal calli within the margins of the erect, dilated middle third, the base broadly unguiculate, thick, minutely verrucose, truncate, bilobulate, hinged to the column-foot; **column** semiterete, winged above the middle, denticulate at the apex, 3-4 mm long, the foot 1-2 mm long, the anther and the stigma ventral.

DOMINICA: 1809, *Dr. Imray 272* (Holotype: K); *Dr. Imray 178* (K); Slopes of Micotrin, Fresh Water Lake toward Boeri Lake, alt. 2,700 ft., 15 July 1964, *R.L. Wilbur et al. 7497* (AMES, US); Morne Diablotin, alt. 800 m, 8 Apr. 1990, *C. Pendry* (BM).
MARTINIQUE: without collection data, *P. Duss 393* (BR).
GUADELOUPE: without collection data, *P. Duss 3342* (NY); Basse-Terre: trail between Plateau de Papaye & Ravine Chaude, above Matouba, alt. 925-975 m, 26 Nov. 1959, *G.R. Proctor 20167* (AMES, BM). Saint Claude, Forêt de Bains Jaunes, 8 Mar. 1992, *J. Fournet & P. Feldmann 5144* (GUAD). Bains Jaunes, alt. 700 m, 26 Oct. 1939, *H. Stehlé 413* (US); Bains Jaunes, Chemin du Saut du Galion, 3 May 1974, *J. Fournet, Sastre & Clarion 1924* (GUAD). Basse Terre, Massif de la Soufrière, alt. 900 m, 3 May 1974, *C. & F. Sastre, J. Fournet & M. Clairon 2847* (AMES, GUAD, P). Massif de la Soufrière, Trace Victor Hughes, alt. 1000 m, 26 Jan. 1980, *J. Jérémie 849* (AMES, NY, P, UPRRP). Chamin de la Rivière Carbet, alt. 1000 m, 16 Feb. 1936, *H. Stehlé 638* (AMES, US); Chemin de la Soufriere, Bains Jaunes, alt. 1070 m, 8 Feb. 1937, *H. Stehlé 1366* (NY, P).
DOMINICAN REPUBLIC: **Barahona**: Monteada Nueva, Caña Brava, south of Cabral, alt. 1300 m, 15 June 1968, *A.H. Liogier 11668* (AMES, NY, US); Sierra de Bahoruco, Loma Pie de Pol, alt. 1400 m, 18 May 1988, *T. Zanoni, J. Pimentel & A. Cabral 41132* (JBSD, NY)
COSTA RICA: **Alajuela**: San Ramón, road to San Carlos, Quebrada Verde, 1867, *A. Endres 42* (W); between Balsa and San Lorenzo, alt. 1050-1100 m, 25 Apr. 1983, *R. Liesner & E. Judziewicz 14884* (K, MO); northwest of San Ramón to San Lorenzo, alt. 750 m, 24 Apr. 1983, *R. Liesner & E. Judziewicz 14695* (MO). **Cartago**: Tapantí, ridge between Quebrada Casa Blanca and Transito, alt. 1400 m, 10 Aug. 1984, *M. Grayum & B. Jacobs 3721* (MO). **Heredia**: La Palma near San Pedro, *A.M. Brenes 586* (AMES); between Quebrada Tigre and east fork of Río Sardinal, alt. 600 m, 2 Feb. 1985, *M. Grayum et al. 5054* (MO); Sarapiquí, southeast of Horquetas, alt. 400 m, 2 Oct. 1989, *O. Vargas* (CR, MO). **Limón**: Guápiles, Río Corinto, alt. 500 m, 7 Sept. 1990, *C. Chávez 49* (CR, K); Parqué Nac. Braulio Carrillo, Carrillo Station, alt. 620-780 m, 11 Nov. 1990, *S. Ingram & K. Ferrell-Ingram 701* (AMES, CR, F, K, MO, SEL); Vásquez de Coronado, sendero La Botella, alt. 750 m, 21 Sept. 1990, *S. Ingram & K. Ferrell-Ingram 557* (CR, MO, SEL).
PANAMA: **Coclé**: Loma del Tigre north of El Valle de Antón, alt. 1000 m, 16 Nov. 1946, *P.H. Allen 3808* (K, MO).
COLOMBIA: **Antioquia**: Dabeiba, Chimiado, collected by H. Angarita, 1987, cult. by Dr. R. Londoño, 20 Mar. 1989, *C. Luer 14310* (MO); Río Cocorná, collected and cult. by Dr. A. Villegas, Fitzebad, 12 Mar. 1989, *C. Luer 14121* (MO). **Chocó**: Corcovada region, upper Río San Juán, alt, 200-275 m, 24 Apr. 1939, *E.P. Killip 35264* (AMES, US). **Cundinamarca**: N. Valencia, Oct. 1992, cult. at Colomborquídeas, 2 Jan. 1993, *R. Escobar 5197* (MO). **Risaralda**: Pueblo Rico, La Linea, alt. 2000 m, collected 1992, cultivated at Colomborquídeas, 23 May 1995, *C. Luer 17549* (MO).
VENEZUELA: **Bolívar**: Chimantá Massif, Apacará-tepui, alt. 1700-1850 m, 23 June 1953, *J.A. Steyermark 75966* (AMES, F, NY, VEN); Cerro Venamo, alt 950-1400 m, 28 Dec. 1963, *J.A. Steyermark & G.C.K. Dunsterville 92301* (AMES, VEN); Sierra Pakaraima, alt. 1400 m, 4 May 1973, *J.A. Steyermark 95422* (AMES); Ptari-tepui, alt. 2100-2285 m, 30 Oct. 1944, *J.A. Steyermark 59550* AMES, VEN); Cerro Sarisariñama, alt. 700 m, 12 Feb. 1974, *J.A. Steyermark et al. 109000* (AMES, K, VEN); Auyan-tepui, Río Churún, alt. 1600 m, 13 May 1964, *J.A. Steyermark 93839* (AMES, NY).
GUYANA: Mt. Roraima, *G.H.H. Tate 489* (AMES).
ECUADOR: **Esmeraldas**: west of Lita toward San Lorenzo, alt. 200 m, 25 Jan. 1996, *A. Hirtz, X. Hirtz & J. del Hierro 6280* (MO). **Napo**: between Cotundo and Coca, alt. 1100 m, 18 Nov. 1984, *A. Hirtz 2110* (MO); Bermejo oil fields north of Lumbaqui, alt. 850 m, 9 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11748* (MO). **Pastaza**: Mera, alt. ca. 1100 m, 9 Dec. 1955, *E. Asplund 18744* (AMES, S). **Morona-Santiago**: between Macas and Guamote, alt. 1900 m, 16 Jan. 1989, *C. Luer, J. Luer, A. & P. Jesup, A. Hirtz & S. Ortega 13945* (MO); between Mendez and Morona, alt. 800-1000 m, 22 Nov. 1989, *C.H. Dodson, N. Williams, E. Hagsater & M. Whitten 17763* (MO). 13484 (MO, QCNE). **Zamora-Chinchipe**: Cordillera del Condor, east of Los Encuentros, alt. 1500 m, 19 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13484* (MO); east of Mayaicu, alt. 1070 m, 20 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13523* (MO).
PERU: **Loreto**: Pumayacu between Balsapuerto and Moyabamba, alt 600-1200 m, Aug-Sept. 1933, *G. Klug 0.7* (AMES, K). **Pasco**: Oxapampa, Cacazo, above Villa Rica, alt. 1770 m, 13 Dec. 1987, *D. Bennett 4071* (MO).

BOLIVIA: **La Paz**: Hda. Simaco on the way to Tipuani, alt. 1400 m, Feb. 1920, *O. Buchtien 5037* (holotype of *P. umbraticola* destroyed at B; lectotype here designated: AMES; isolectotypes: HBG, US). **Cochabamba**: Chapare, between Cochabamba and Villa Tunari, alt. 1900 m, 15 Jan. 1988, *C. Luer, J. Luer, R. Vásquez, T. & D. Mulder & A. Vogel 12833* (MO).

This species is relatively frequent in its wide distribution from Costa Rica and the Lesser Antilles across South America into Bolivia. Vegetatively, it is easily recognized by the usually large habit with a loose sheath near the middle of an elongated ramicaul that bears a broadly ovate leaf on a twisted petiole. The flowers are borne behind the leaf in short racemes. The flowers vary in color from pure yellow or purple to purple-black. The pubescence within is variable. The small-flowered "variation" with glabrous sepals, described from Panama as *P. vaginata*, is usually cleistogamous, but some cleistogamous forms elsewhere are pubescent. The petals are spathulate, and the lip is arcuate and elliptical with the longitudinal calli within the margins.

Pleurothallis jalapensis (Kraenzl.) Garay, Bot. Mus. Leafl. 30(3): (58)192, 1986.

Bas.: *Masdevallia jalapensis* Kraenzl., Repert. Spec. Nov. Regni Veg. Beih. 34: 117, 1925.

Ety.: Named for the community of Jalapa, Guatemala, near where the species was found.

Plant medium to large in size, epiphytic to lithophytic, caespitose; roots slender. Ramicauls slender, terete, erect, 2.5-5 cm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, 6-10 cm long, 1.5-2.5 cm wide, cuneate below into a petiole 0.5-1 cm long. **Inflorescence** a loose, secund, simultaneously many-flowered raceme, 14-30 cm long including the peduncle 8-17 cm long, subtended by a spathe 3 mm long, from near the apex of the ramicaul, floral bracts oblique, acute, 5-7 mm long; pedicels slender, drooping, 5-9 mm long; ovary slender, dotted with purple, 5 mm long; **sepals** whitish with numerous purple spots, purple-ciliate, the dorsal sepal narrowly ovate, the acute apex lightly adherent to the apex of the synsepal, 10-15 mm long, 3-4 mm wide, 3-veined, essentially free from the laterals at the base, the lateral sepals connate into a shallowly concave, ovate, acute synsepal, 10-14 mm long, 5-7 mm wide, 6-veined; **petals** translucent, marked with purple above the middle, obovate-spathulate, subacute, 3.5 mm long, 2.5 mm wide, 3-veined, with a subverrucose callus on the inner surface above the middle, the margins minutely irregular above the middle; **lip** spotted with purple, oblong, unguiculate, the blade 2.5 mm long, 1-2.5 mm wide, with a pair of erect, acute, marginal lobes above the claw, the apex rounded, verrucose, the disc cleft between a pair of parallel, verrucose calli above the claw, the claw decurved, 1 mm long, hinged to the tip of the column-foot; **column** broadly winged above the middle, semiterete below, the clinandrium denticulate-erose, 2 mm long, the foot stout, 1 mm long, the anther-cap cellular-papillose.

GUATEMALA: **Jalapa**: lithophytic and terrestrial, along the way between Santa Rosa and Jalapa, alt. 1500 m, July 1882 *F.C. Lehmann 1296* (Holotype: G; Isotype: HBG). **Quiché**: Sacapulae, road to Nebaj, terrestrial in dense, oak forest, alt. 1700 m, 28 Aug. 1976, flowered in cultivation 14 Nov. 1977, *M. Dix 517* (UVAL).
MEXICO: **Chiapas**: alt. 8,000 ft., collected by Dick Emory, 11 Mar. 1981, flowered in cultivation by Dr. E. Katler in Pinole, CA, 9 July 1989, *C. Luer 14405* (MO).

This species is rare and local in the mountains of Guatemala and adjacent Chiapas, Mexico. The first known collection was by Consul Lehmann on a visit to Guatemala from Colombia in 1882. Obviously unfamiliar with the morphological criteria for *Masdevallia*, Kränzlin described this collection as a *Masdevallia* in his monograph of *Masdevallia* in 1925.

The species is characterized by a tall, erect raceme that far exceeds the elliptical, petiolate leaf borne by a shorter ramicaul. Several to many relatively large flowers all drooping to one side are borne more or less simultaneously in a loose raceme. The tip of the narrow dorsal sepal is lightly adherent to the tip of the synsepal. The sepals are spotted and ciliate; the petals are ovate with an external callus at the apex; and the lip is oblong with erect, acute, marginal lobes above the claw.

Pleurothallis lehmanneptis Luer & Escobar, Orquideología 21: 100, 1998.

Ety.: Named for the late Amalia Lehmann de Sarria; from *Lehmann* and the Latin *neptis*, "granddaughter of Lehmann."

Plant medium to large, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 3-5 cm long, enclosed by a loose, tubular sheath, and 2 shorter sheaths above the base. **Leaf** erect, coriaceous, elliptical, obtuse, sessile, 7-14 cm long, 3-6 cm wide, cuneate below into the base. **Inflorescence** a single, loose, distichous, subflexuous, simultaneously several-flowered raceme, 10-18 cm long including the peduncle 5-11 cm long, subtended by a spathe ca. 5 mm long, from the apex of the ramicaul at the base of the leaf; floral bracts infundibular, 3-5 mm long; pedicels 7-9 mm long; ovary 3 mm long; **sepals** fleshy, olive with multiple small, dark brown spots, minutely pubescent within, carinate externally, the dorsal sepal obovate, concave, obtuse, 10-12 mm long, 5-5.5 mm wide, the lateral sepals connate to near the apex into an obovate, bifid, obtuse lamina, 9.5-10 mm long, 6 mm wide; **petals** thick, yellow with red spicules externally, spathulate, obtuse, unguiculate, 4.5-5 mm long, 4-4.5 mm wide, 1 mm wide below the middle; **lip** thick, fleshy, covered with dark brown spots, oblong, rounded at the apex, arcuate, unguiculate, 4 mm long, 2 mm wide unexpanded, the sides erect with a longitudinal, intramural callus, verrucose within with the center transversely rugose, the base truncate, hinged to the column-foot; **column** stout, longitudinally winged, denticulate-erose, 5 mm long, the foot thick, 1.5 mm long, the anther and the stigma ventral.

COLOMBIA: **Valle del Cauca**: without collection data, cultivated by Orquídeas del Valle, 15 Mar. 1997, *C. Luer 18449* (MO). **Cauca**: near Popayán, cultivated by Amalia Lehmann de Sarria, 26 July 1978, *C. Luer 3010* (SEL).

This species was cultivated by Amalia Lehmann de Sarria in 1978 in her collection of orchids in Popayán in southern Colombia, the same town in which her grandfather, mining engineer F.C. Lehmann, had been the German consul. *Pleurothallis lehmanneptis* is allied to *P. immersa*. As the name implies, the peduncle of *P. immersa* is embedded or clasped in the central groove of the leaf, usually for about half its length. However, in many plants the peduncle is only lightly held in the groove, and occasionally it is free. In *P. lehmanneptis* the peduncle is completely free with a broader, elliptical leaf instead of an obovate leaf distinctly narrower toward the base. The raceme is shorter and less flexuous. The flowers are similar, but the petals are spiculate-verrucose externally toward the broad apex.

Pleurothallis listerophora Schltr., Repert. Spec. Nov. Regni Veg. 3: 107, 1906.

Ety.: From the Greek *listerophoros*, "shovel-bearing," referring to the shape of the lip.

Syn.: *Pleurothallis campicola* Luer, Selbyana 5: 161, 1979.

Ety.: From the Latin *campicola*, "dweller of the plains," referring to the Llanos del Volcán.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1.5-4 cm long, with a close, tubular sheath below the middle, and 2-3 shorter sheaths above the base. **Leaf** thickly coriaceous, erect, narrowly elliptical-obovate, subacute to obtuse, 2.5-5.5 cm long, 0.5-0.7 cm wide, narrowly cuneate below into a subpetiolate base. **Inflorescence** an erect, lax, subsecund, successively few-flowered raceme, 1-3 cm long including the peduncle 0.5-0.7 cm long, subtended by a spathe ca. 2 mm long, from near the apex of the ramicaul; floral bracts tubular, 3 mm long; pedicels 2-4 mm long; ovary green 2 mm long; **sepals** carinate, yellow-green, irregularly speckled with purple, glabrous externally, long-pubescent within, the hairs purple, the dorsal sepal elliptical-obovate, obtuse to subacute, concave, 5 mm long, 2 mm wide, 3-veined, free from the laterals, the lateral sepals connate into a concave, oblong, shortly bifid synsepal, forming a mentum below the column-foot, 4 mm long, 2.5 mm wide, 6-veined, the apices obtuse, apiculate, in apposition; **petals** white, irregularly dotted with purple, spathulate, rounded at the apex, 2 mm long, 1.2 mm wide; **lip** greenish white, flecked with purple, elliptical-oblong, unguiculate, 2.25 mm long, 0.75 mm wide, the apex rounded, the sides low, erect near the middle, obtusely angled below the middle into the petiole ca. 1 mm long, the disc shallowly concave between a pair of low, slightly undulating calli on the middle third, the base truncate, bilobulate, hinged to the tip of the column-foot; **column** white, flecked with purple, semiterete, denticulate at the apex, 2 mm long, the foot 0.5 mm long, the anther and stigma ventral.

COSTA RICA: **San José**: near La Uruca, alt. 1110 m, July 1890, *H. Pittier 2986* (Holotype of *P. listerophora* destroyed at B; Lectotype here designated: US; Isolectotype: AMES), C. Luer illustr. 18850.
PANAMA: **Chiriquí**: scrubby trees on the Llanos del Volcán, west of El Hato del Volcán, alt. 1500 m, 20 Feb. 1977, *C. Luer & H. Butcher 1830* (holotype of *P. campicola*: SEL).

Although in habit this species resembles *P. retusa*, the flowers are more similar to those of *P. villosa*. *Pleurothallis listerophora* is known from a single collection from Costa Rica, and its identity remained obscure. Hydration of a flower of the isotype at US reveals remarkable differences from Schlechter's description and figure. Most noteworthy are the long-pubescent sepals that are described and illustrated as glabrous, and the crude caricature of an unguiculate lip. *Pleurothallis campicola* from westernmost Panama is no doubt the same species.

The ramicauls are slightly shorter than the thick, narrowly obovate leaves, and the erect, successively several-flowered raceme is shorter than the leaf. The purple-spotted flowers with a prominent mentum are purple-villous within; the petals are spathulate; and the lip is elliptical with a pair of central carinae, and unguiculate below shallow marginal angles below the middle.

Pleurothallis longispicata L.O.Williams, Bot. Mus. Leafl. 12: 240, 1946.

Ety.: From the Latin: *longispicatus*, "long-spiked," referring to the inflorescence.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 2.5-4.5 cm long, mostly enclosed by a tubular sheath, with 2-3 short sheaths at the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, 3-6.5 cm long, 1-2.5 cm wide, cuneate below into a petiole 0.5-1 cm long. **Inflorescence** a loose, secund, simultaneously several-flowered raceme, 10-15 cm long including the peduncle ca. 5 cm long, subtended by a spathe ca. 3 mm long, from near the apex of the ramicaul, floral bracts tubular, 5 mm long; pedicels slender, 5 mm long; ovary slender, spotted with purple, 2 mm long; **sepals** dull dark-purple, glabrous, carinate, the dorsal sepal elliptical-oblong, obtuse, 6 mm long, 2.25 mm wide, 3-veined, essentially free from the laterals at the base, the lateral sepals connate into a shallowly concave, oblong, shortly bifid synsepal, 6 mm long, 3 mm wide expanded, 6-veined, the apices subacute, in apposition; **petals** marked with purple, elliptical-oblong, obtuse-truncate, 3 mm long, 1.5 mm wide, 1-veined, subcarinate-subverrucose externally; **lip** spotted and suffused with purple, oblong-trilobed, 3.5 mm long, 1 mm wide, 2 mm wide expanded, the apical lobe oblong, obtuse-truncate, verrucose, the lateral lobes erect, near the middle, obtuse, the disc with a pair of low, verrucose calli extending forward from the lateral lobes, the base truncate, hinged to the tip of the column-foot; **column** purple, narrowly winged above the middle, denticulate at the apex, 2.5 mm long, the foot 1 mm long, the anther and stigma ventral.

MEXICO: **Michoacán**: near Coalcomán, alt. ca. 1700 m, 22 June 1933, *C. Halbinger 1752* (Holotype: AMES). **Sinaloa**: Puerto El Alagar, alt. 7,000 ft., 1 Aug. 1969, *? 6915* (K).

This species, closely allied to sympatric *P. resupinata*, is endemic in the mountains of southern Mexico. *Pleurothallis longispicata* is characterized by the proportionately long, lax, secund, successively flowered raceme that far surpasses the leaf. The sepals are fleshy, carinate, dark purple and glabrous; the petals are oblong; and the lip is three-lobed below the middle.

Pleurothallis nigriflora L.O.Williams, Amer. Orch. Soc. Bull. 11: 168, 1942.

Ety.: From the Latin *nigriflorus*, "black-flowered," referring to the color of the flowers.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1-2 cm long, mostly enclosed by a tubular sheath, with 2-3 shorter sheaths above the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, 2-4.5 cm long, 0.8-1.2 cm wide, cuneate below into a petiole 3-6 mm long. **Inflorescence** a loose, subsecund, successively 2- to 3-flowered raceme, 5-12 mm long including the peduncle 3-5 mm long, subtended by a minute spathe 2-3 mm long, from near the apex of the ramicaul, floral bracts tubular, 2 mm long; pedicels slender, 1.5 mm long; ovary 1 mm long; **sepals** fleshy, subcarinate, smooth, purple-black, the dorsal sepal elliptical-ovate, obtuse, concave, 4.5 mm long, 2 mm wide, 3-veined, essentially free from the laterals at the base, the lateral sepals connate into a concave, oblong, shortly bifid synsepal, 5 mm long, 3.75 mm wide expanded, 6-veined, the apices acute, in apposition; **petals** purple, oblong-obovate, rounded at the apex, 2.4 mm long, 1.2 mm wide, 1-veined; **lip** suffused with purple, oblong, 3 mm long, 0.8 mm wide, the apex rounded, minutely denticulate-verrucose, the sides erect near the middle, the disc shallowly concave between a pair of low, minutely verrucose carinae within the margins on the middle third, the base truncate, hinged to the tip of the column-foot; **column** semiterete, narrowly winged above the middle, denticulate at the apex, 2 mm long, the foot 1 mm long, the anther and stigma ventral.

MEXICO: **Morelos**: between Catarina and Tepoztlan, alt. 1800 m, 31 Aug. 1936, *O. Nagel & E. Oestlund 6016* (Holotype: AMES; Isotype: MO), C. Luer illustr. 19066; near Tepoztlan, alt. 1800 m, 5 Aug. 1936, *O. Nagel & J. Gonzales 6119* (AMES); above Tepoztlan, 16 July 1959, *R.L. Dressler 2490* (MO).

This species is closely allied to *P. resupinata* and has been considered synonymous with the latter. However, the differences are sufficient to maintain the species. The raceme of *P. nigriflora* is shorter with smaller, purple-black flowers that are smooth without distinct carinae. The petals and lip of the two concepts are similar.

Pleurothallis oestlundiana L.O.Williams, Bot. Mus. Leafl. 12: 243, 1946.

Ety.: Named for Karl Erik Magnus Östlund, Swedish collector who contributed extensively to the orchid flora of Mexico.

Syn.: *Pleurothallis sanguinolenta* Garay & Kittredge, Fl. Novo-Galiciana 16: 273, 1985.

Ety.: From the Latin *sanguinolentus*, "filled with blood-red," referring to the flowers.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 2-5.5 cm long, mostly enclosed by tubular sheaths from near the middle, and at the base. **Leaf** more or less suffused with purple, coriaceous, erect, narrowly elliptical-obovate, subacute to obtuse, 3-8 cm long, 0.6-1.5 cm wide, narrowly cuneate below into a subpetiolate base. **Inflorescence** an erect, lax, subsecund, successively few-flowered raceme, 1.5-3.5 cm long including the peduncle 1-2 cm long, subtended by a spathe ca. 2 mm long, from near the apex of the ramicaul; floral bracts tubular, 2 mm long; pedicels 2-3 mm long; ovary 2 mm long; **sepals** carinate, yellow-green, variously suffused with purple, glabrous externally and internally, the dorsal sepal elliptical-obovate, obtuse to subacute, concave, 6-8 mm long, 2.2-2.5 mm wide, 3-veined, free from the laterals, the lateral sepals connate above the middle into a concave, oblong, bifid synsepal, forming a small mentum below the column-foot, 6-7 mm long, 3.2-4 mm wide, 6-veined, the apices obtuse, apiculate, in apposition; **petals** yellow-green, suffused with purple, spathulate, rounded at the apex, 3-3.4 mm long, 1.6 mm wide, 1-veined (with an accessory pair seen in *P. sanguinolenta*); **lip** yellow-green, elliptical-ovate, 4-5 mm long, 1.6 mm wide, the apex broadly rounded, the sides low, erect, broadly rounded near to below the middle, the disc verrucose above the middle, shallowly concave between a pair of lamellae within the margins, the base cuneate, truncate, minutely bilobulate, hinged to the tip of the column-foot; **column** semiterete, bidentate at the apex, 2.5-3 mm long, the foot 1 mm long, the anther and stigma ventral.

MEXICO: **Guerrero**: Tenería, above Taxco, oak forest, alt. 2300 m, 23 July 1932, *Juan Gonzales 1062* (Holotype: AMES), C. Luer illustr. 17167. **Morelos**: near Mexicapa west of Cuernavaca, alt. 2300 m, 8 July 1932, *Juan Gonzales 2674* (AMES, MO). **Jalisco**: Sierra de Manantlán, southeast of Autlán, near Aserradero San Miguel Uno, alt. 2250-2400 m, 4-5 Nov. 1952, *R. McVaugh & J. Sooby 13911* (holotype of *P. sanguinolenta*: Ames; isotype: BM), C. Luer illustr. 18523. **México**: south of Tenancingo, 2 Aug. 1959, *R.L. Dressler 2517* (MO).

This species, apparently endemic in the mountains of southern Mexico, is allied to the sympatric *P. retusa*. Although vegetatively similar, it differs from the latter with a shorter, fewer-flowered raceme; oblong petals that are not narrowly unguiculate; and a larger lip that is not distinctly three-lobed. Instead, the lip is dilated and verrucose at the apex and with a pair of erect intramural lamellae near and below the middle.

Pleurothallis ornata Rchb.f., Gart. Zeitung (Berlin) 1: 106, 1882.

Ety.: From the Latin *ornatus*, "ornate," in allusion to the "trembling" sepaline appendages.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 5-15 mm long, enclosed by a tubular sheath, with 2-3 shorter sheaths at the base. **Leaf** erect, thickly coriaceous, more or less spotted with purple behind, elliptical, subacute to obtuse, 2-4 cm long, 0.8-1.2 cm wide, cuneate below into the sessile base. **Inflorescence** a weak, lax, distichous, flexuous, successively few-flowered raceme, 5-10 cm long including the peduncle 2-3 cm long, subtended by a spathe 3 mm long, from the apex of the ramicaul at the base of the leaf; floral bract oblique, 2-2.5 mm long; pedicel slender, 4-6 mm long; ovary streaked with red, 3.5 mm long; **sepals** yellow-green, suffused and spotted with purple, glabrous within, the margins with evenly spaced, white, long-clavate, oscillating appendages up to 2 mm long, the dorsal sepal elliptical-ovate, obtuse, convex, 6.5-7.5 mm long, 4 mm wide, 3-veined, free from the lateral sepals, the lateral sepals convex, obovate, obtuse, 6.5-7.5 mm long, 2.75 mm wide, connate below the

middle; **petals** translucent yellow-green, spotted with purple, obovate-spathulate, obtuse, 2.5 mm long, 1 mm wide, carinate externally; **lip** green, marked with purple, oblong-unguiculate, arcuate, 3 mm long, 1.25 mm wide, the apex rounded, sides erect below the middle, subacutely angled above the claw, the disc shallowly concave between a pair of obtuse calli near the middle, the claw slender, 0.5 mm long, the base bilobulate, hinged to the tip of the column-foot; **column** red, denticulate-winged above the middle, 2.5 mm long, the foot 1 mm long, the anther and stigma ventral.

MEXICO: Without collection data, cultivated by Sander, 10 Apr. 1881, (Holotype: W). **Oaxaca**: mountains south of Ayutla, System of Zempoaltė, alt. 2400 m, 11 Mar. 1935, *O. Nagel 3792* (MO); oak forest on Juquila Mixes road, alt. 2400 m, cultivated by R. McCullough, 27 Mar. 1976, *C. Luer 064* (SEL).
GUATEMALA: **Alta Verapaz**: Tictac, Mt. Chi-Ixim, alt. 1800 m, Nov. 1998, *M. Behar s.n.* (MO); San José Pinula, aldea Cruz Alta, alt. 2000 m, May 1999, *J. Fonseca s.n.* (MO).
EL SALVADOR: Cerro Montecristo, alt. 2200 m, May 1967, *F. Hamer 171* (SEL).

Pleurothallis ornata has been identified as *P. schiedei* in most publications during this century. Who originated the misidentification is unknown, but all subsequent authors have perpetuated the error. Both *P. schiedei* and *P. hirsuta* are synonymous with *P. villosa*. Although the descriptions of *P. ornata* and *P. villosa* are deceptively similar, the conspicuous, white, dangling, long-clavate appendages along the margins of the spotted sepals of *P. ornata* are unique. Reichenbach referred to them as *lamellae*.

The ramicauls are shorter than one and a half centimeter, the leaf is elliptical, and the successively flowering, flexuous raceme exceeds the leaf. The sepals are convex, and the spreading laterals are connate below the middle. The sepals of *P. villosa* (syn. *P. schiedei* and *P. hirsuta*) are simply ciliate and concave with the laterals connate to near the apex.

Pleurothallis petiolaris Luer, Orquideología 20: 220, 1996.

Ety.: From the Latin *petiolaris*, "petiolate," referring to the long petioles of the leaves.

Plant small, epiphytic, caespitose; roots slender, densely fasciculate. Ramicauls erect, slender, 1.5-3 cm long, enclosed by 3 long, tubular sheaths, often shed. **Leaf** erect, coriaceous, elliptical, acute, long-petiolate, the blade 3.5-4.5 cm long, 1-1.8 cm wide, cuneate below into the slender petiole 0.5-1 cm long. **Inflorescence** an erect, subsecund, simultaneously few-flowered raceme, 6-7 mm long, borne by a slender peduncle ca. 10 mm long, subtended by a spathe 5-6 mm long, from an annulus 5 mm below the apex of the ramicaul; floral bracts 2 mm long; pedicels 1.5 mm long; ovary 1 mm long; **sepals** yellow-green, suffused with brown toward the apices, glabrous externally, finely pubescent within above the middle, carinate, the dorsal sepal obovate, obtuse, 4.5 mm long, 1.75 mm wide, 3-veined, connate to the lateral sepals for 2 mm to form a tube, the lateral sepals connate into an ovate synsepal, 4 mm long, 1.25 mm wide, forming a small but deep mentum below the column-foot, the apex shallowly bifid into 2 acute apices; **petals** translucent brown, obovate-spathulate, 2.25 mm long, 1.25 mm wide, the apex broadly rounded, apiculate, carinate externally along the midvein; **lip** brown, oblong-ovate, arcuate, 2 mm long, 1 mm wide, the apex obtuse, coarsely verrucose, the disc verrucose centrally, with a pair of longitudinal calli within the margins of the dilated middle third,the base unguiculate, truncate, bilobulate, hinged to the column-foot; **column** semiterete, 2 mm long, the foot 1.5 mm long, denticulate at the apex, the anther and the stigma ventral.

COLOMBIA: **Cauca**: epiphytic in moist forest around Santa Maria on the Río Timbiquí, alt. 200-400 m, Aug. 1899, *F.C. Lehmann 9099* (Holotype: K), C. Luer illustr. 17096; Río Naya, cultivated in Popayán by Amalia Lehmann de Sarria, 16 Nov. 1982, *C. Luer 8444* (SEL).

This species is apparently endemic in Pacific coastal forests of Colombia where it was collected by Consul Lehmann. Related to *R. imraei* Lindl., it is distinguished by the small habit with elliptical leaves borne by a long, slender, distinct petiole. The few-flowered raceme reaches just beyond the petiole. The sepals are connate from below the middle to about the middle into a tube with a small but acute and deep mentum below the column-foot. The sepals are carinate externally and finely pubescent within; the petals are broadly spathulate; and the arcuate lip is verrucose at the apex and with calli within the dilated margins of the middle third.

Pleurothallis platystylis Schltr., Repert. Spec. Nov. Regni Veg. 10: 395, 1912.

Ety.: From the Greek *platystylos*, "a broad style," no doubt referring to the column, which is not particularly broad.

Syn.: *Pleurothallis bernoullii* Schltr., Repert. Spec. Nov. Regni Veg. 15: 204, 1918.

Ety.: Named in honor of G. Bernoulli, co-collector of the species.

Plant medium to large, epiphytic, caespitose; roots slender. Ramicauls slender to stout, erect, 5-12 cm long, mostly enclosed by a tubular sheaths near the middle and 2-3 other sheaths at the base. **Leaf** erect, coriaceous, elliptical, obtuse, 5-13 cm long, 2-3 cm wide, gradually narrowed below into the subpetiolate base. **Inflorescence** a loose, secund, simultaneously many-flowered raceme, 10-20 cm long including the peduncle 2-3 cm long, subtended by a narrow spathe ca. 1 cm long, at the base of the leaf; floral bracts oblique, acute, 2-3 mm long; pedicels 3 mm long; ovary 2 mm long; **sepals** yellow-green, microscopically pubescent within, the dorsal sepal elliptical-ovate, acute, 6.5-8 mm long, 2 mm wide, 3-veined, the lateral sepals oblong, acute, carinate, 6.5-8 mm long, 1.5 mm wide, connate to near the middle into an arcuate synsepal, 3.5 mm wide, 6-veined, with a mentum below the column-foot; **petals** yellow-green, elliptical, obtuse to rounded, 4-4.5 mm long, 1.5 mm wide, 3-veined; **lip** yellow-brown, elliptical-oblong, rounded and minutely undulate at the apex, 4 mm long, 1.5 mm wide expanded, the middle third with the sides thin and erect, the disc slightly thickened, especially toward the apex, the base subunguiculate, hinged to the column-foot; **column** semiterete, denticulate at the apex, 2 mm long, the foot 1 mm long, the anther cap uncinate, rostellum and stigma ventral.

GUATEMALA: **Alta Verapaz**: Cobán, alt. 4250 ft., Nov. 1877, *H. von Türckheim s.n.* (W); Heights between Tactic and Cobán, alt. 2000 m, Dec. 1906, *H. von Türckheim II 1600* (Holotype destroyed at B, lectotype here designated: AMES 23667, illustr. of type); Cobán, alt. 1500 m, Nov. 1907, *H. v. Türckheim II 1867* (BR, W); Cobán, alt. 1550 m, Dec. 1912, *H. v. Türckheim 3998* (W). **Guatemala**: near Guatemala, Dec. 1865, *G. Bernoulli & Cario 499* (holotype of *P. bernoullii* destroyed at B?). **Baja Verapaz**: Union Barrios, 31 Aug. 1975, *C.L. Lundell & E. Contreras 19777* (LL, MO).
MEXICO: **Jalapa**: without specific locality, 14 Nov. 1877, as *P. xalapensis*, *Kienert s.n.* (W), C. Luer illustr. 18578. **Oaxaca**: Ixtlán, San Pedro Yaneri, south of La Esperanza, alt. 1300-1400 m, 23 Nov. 1984, *G. Davidse et al. 30238* (MO). **Puebla**: west of Villa Juárez, alt. 1200 m, 26 Nov. 1972, *Rzedowski 29987* (EBCB, MO). **Veracruz**: Xico, Puente Acalocabaya, between Xico and Xico Viejo, 4 Oct. 1986, *M. Charazo B. & P. Hdez. De Charazo 4022* (AMO, XAL).
EL SALVADOR: Cerro Montecristo, northeast of Metapán, alt. 1950-2000 m, 31 July 1977, *T.B. Croat 42402* (MO).
HONDURAS: **Colón**: Trujillo Colón, Cerro Calentura, alt. 5 m, 20 Apr. 1984, *UNAH 160* (MO, UNAH). **Morazán**: San Juancito Mts, alt. 2000 m, 2 Jan. 1955, *L.O. & R.P. Williams 18943* (F, LE). **Siguatepeque**: Comayagua, Cordillera de Montecillos, trail to San Juanillo, alt. 1800 m, 7 Nov. 1991, *T. Hawkins 20* (EAP, MO, TEFH).

This species is mostly confined to southern Mexico and Guatemala where it is uncommon, with isolated populations in El Salvador and Honduras. It is characterized by the many-flowered, secund raceme that exceeds the elliptical leaf. The sepals are yellow-green and carinate, the laterals being united to near the middle; the petals are elliptical; and the lip is elliptical with thin, erect, broadly rounded, lobelike margins. Most distinctive is the hook-shaped anther-cap that protrudes beyond the tip of the column.

Pleurothallis prolixa Luer & Hirtz, Lindleyana 11: 179, 1996.

Ety.: From the Latin *prolixus*, "elongated," referring to the long anther-cap.

Plant medium in size, epiphytic, shortly repent to caespitose, the rhizome 5 mm or less long between ramicauls; roots slender from along the rhizome. Ramicauls erect, slender, 9-14 cm long, with a tubular sheath near the middle and 2-3 other sheaths about the base. **Leaf** erect, coriaceous, fleshy, 5 mm thick, narrowly elliptical, subacute, subpetiolate, 9-11 cm long, 1.2-2 cm wide, narrowly cuneate below into the base. **Inflorescence** 1-4 loose, secund, simultaneously several- to many-flowered racemes, 9-13 cm long including the peduncle 3-5 cm long, with a spathe 10 mm long, from near the apex of the ramicaul, 2-3 mm below the abscission layer; floral bracts 5-7 mm long; pedicels 4 mm long; ovary 3 mm long; **sepals** purple, shortly pubescent within, carinate, the dorsal sepal obovate, concave, acute, 11 mm long, 3.4 mm wide, the lateral sepals connate 6 mm into an obovate, bifid, obtuse lamina, 9.5 mm long, 5 mm wide; **petals** translucent purple, obovate, obtuse, unguiculate, 6.5 mm long, 3 mm wide, tricarinate externally; **lip** purple, ovate-subpandurate, 5.5 mm long, 1.25 mm wide unexpanded, narrowed above the middle the apex ovate, subacute to obtuse, minutely callous-rugose, denticulate-

erose, the margins below the middle erect, longitudinally callous, broadly rounded, the base unguiculate, hinged to the column-foot; **column** stout, winged above the lower third, 3 mm long, the foot thick, 2 mm long, the anther elongated, ventral, and the stigma ventral.

ECUADOR: **Loja**: epiphytic in cloud forest at the pass north of Loja, alt. 3150 m, 17 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9554* (Holotype: MO).

This species, apparently endemic in southern Ecuador, is distinguished by the extremely thick, fleshy leaves; sepals shortly pubescent within; proportionately large, unguiculate, tricarinate petals; and a subpandurate-unguiculate lip with erect, obtuse sides with intramural calli and an ovate, denticulate, minutely verrucose-rugose apex. An elongated anther-cap protrudes beyond the apex of the column.

Pleurothallis pseudocheila Luer & Escobar, Orquideología 16: 173, 1984.

Ety.: From the Greek *pseudocheilos*, "a false lip," in allusion to the converging petals.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 8-13 cm long, enclosed by a closely fitting, tubular sheath below the middle and 2-3 sheaths above the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, the base narrowly cuneate, into a slender petiole ca. 1 cm long, the blade 6-10 cm long, 0.7-1.1 cm wide. **Inflorescence** 1-2 erect, distichous, simultaneously few-flowered racemes of non-resupinate flowers, 5-8 cm long including the peduncle ca. 3 cm long, subtended by a spathe 1 cm long, borne near the apex of the ramicaul; floral bracts 3 mm long; pedicels 3 mm long; ovary deflexed on the pedicel, 2 mm long; **sepals** concave and yellow below the middle, convex and purple above the middle, carinate and glabrous externally, densely pubescent within above the middle, the middle sepal elliptical-ovate, obtuse, apiculate, 6 mm long, 2.25 mm wide, 3-veined, free from the lateral sepals, the lateral sepals coherent into an elliptical-oblong synsepal, 5.5 mm long, 3.5 mm wide, the apex shallowly rounded, biapiculate; **petals** purple, spathulate, oblique, 3.5 mm long, 1.25 mm wide, the apex rounded, carinate-apiculate, concave, converging below and anterior to the lip; **lip** purple, ovate-unguiculate, arcuate, 2.5 mm long, 1.5 mm wide expanded, with serrulate margins, the apex recurved, subacute, verrucose, the disc pubescent with a pair of converging carinae within the margins of the erect, dilated middle third, the base broadly unguiculate, thick, pubescent-verrucose, truncate, bilobulate, hinged to the column-foot; **column** yellow, winged above the middle, 3 mm long, the foot 1 mm long, the anther and the stigma ventral.

COLOMBIA: **Cauca**: Buenos Aires, above Timba, cultivated by Amalia Lehmann in Popayán, 21 Oct. 1982, *C. Luer 8186* (Holotype: SEL).

This species is rare in southern Colombia, known only from the type-collection. It is characterized by a slender ramicaul; a narrowly elliptical leaf; a lax, distichous raceme about as long as the leaf; and non-resupinate flowers with the sepals carinate externally and densely pubescent within. Most unusual are the petals with concave apices that converge in front of the lip, as if to form an additional lip. The true lip is small, ovate-unguiculate, and minutely pubescent-verrucose.

Pleurothallis racemiflora Lindl. ex Lodd., Bot. Cab. 10: t.949, 1824, not (Sw.) Lindl.

Ety.: From the Latin *racemiflorus*, "flowers in a raceme," referring to the inflorescence.

Syn.: *Dendrobium quadrifidum* La Llave & Lex., Nov. Veg. Descr. 2: 40, 1825.
Ety.: From the Latin *quadrifidus*, "divided into four parts," referring to the perianth.

Syn.: *Stelis racemiflora* (Lindl. ex Lodd.) Lodd. ex Baxt., Loud. Hort. Brit. Suppl., 3: 643, 1842.

Syn.: *Pleurothallis quadrifida* (La Llave & Lex.) Lindl., Bot. Reg. 28: Misc. 70, 1842.

Syn.: *Pleurothallis ghiesbreghtiana* A.Rich. & Galeotti, Ann. Sci. Nat. Bot. ser 3, 3: 16, 1845.
Ety.: Named in honor of M. Ghiesbreght, contemporary Belgian botanist.

Syn.: *Pleurothallis incompta* Rchb.f., Bonplandia 2: 24, 1854.
Ety.: From the Latin *incomptus*, "unadorned," referring to the simple flowers.

Syn.: *Physosiphon nicaraguënsis* Liebm., Ann. Sci. Nat. Bot. ser. 4, 1: 329, 1856.
Ety.: Named for the country where the species was collected.

Syn.: *Pleurothallis longissima* Lindl., Folia Orch. *Pleurothallis* 31, 1859.
Ety.: From the Latin *longissimus*, "very long," referring to the racemose inflorescence.

Syn.: *Pleurothallis nicaraguënsis* (Liebm.) Rchb.f., Ann. Bot. Syst. 6: 171, 1861.

Syn.: *Humboldtia incompta* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.
Syn.: *Humboldtia longissima* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.
Syn.: *Humboldtia nicaraguensis* (Liebm.) Kuntze, Rev. Gen. Pl. 2: 668, 1891.
Syn.: *Humboldtia quadrifida* (La Llave & Lex.) Kuntze, Rev. Gen. Pl. 2: 668, 1891.

Syn.: *Pleurothallis lyroglossa* Schltr., Repert. Spec. Nov. Regni Veg. 8: 566, 1910.
Ety.: From the Greek *lyroglossa*, "a lyre-shaped tongue," referring to the shape of the lip.

Syn.: *Pleurothallis niederleinii* Schltr., Beih. Bot. Centralbl. 34(2): 396, 1918,
Ety.: Named in honor of Herr Niederlein who collected this species.

Syn.: *Pleurothallis ghiesbreghtiana* var. *cleistogama* L.O.Williams, Ceiba 2: 1951.
Ety.: From the Greek *cleistogamos*, "a closed marriage," in allusion to the closed fertilization.

Plant medium to large, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 5-15 cm long, with a tubular sheath below the middle and 2 other sheaths at the base. **Leaf** erect, shiny green to glaucous, coriaceous, oblong-elliptical, with the margins more or less slightly incurved, subacute to obtuse, 5-14 cm long, 2-3 cm wide, the base cuneate into a subpetiolate base. **Inflorescence** an erect, strict, subcongested, more or less secund, simultaneously many-flowered raceme up to 18 cm long including the peduncle 3-7 cm long, from a spathe ca. 1 cm long at the base of the leaf; floral bracts oblique, acute, 5 mm long; pedicel 4 mm long; ovary 4 mm long; **sepals** yellow to yellow-green, glabrous, subcarinate, the dorsal sepal ovate, acute, 7-9 mm long, 3.5-4 mm wide, 3-veined, the lateral sepals connate into an ovate, obtuse lamina, 6.5-8 mm long, 4.5-5.5 mm wide, 6-veined; **petals** yellow, elliptical-oblong, obtuse, 5-6 mm long, 1.5-3 mm wide, 3-veined; **lip** yellow-green, obovate-pandurate, 4-5 mm long, 2-3 mm wide, the apex broadly rounded, with minutely irregular margins, the margins below the middle erect and broadly rounded, the disc shallowly channeled between a low pair of thick calli on middle third, the base truncate, strongly hinged to the column-foot; **column** yellow, terete, minutely denticulate at the apex, 3 mm long, the foot thick, 1 mm long, the anther, rostellum and stigma ventral.

MEXICO: Cumbe de Chuapasy, July 1842, *F. Liebmann 7350* (C); Oct. 1842, *F. Liebmann 7351* (C). **Nayarit**: Tepic, between Colonia and Arroyo Juán Sánchez, 6 Apr. 1897, *E.W. Nelson 4163* (K, US). **Oaxaca**: Teoxomulco, 1804, *Karwinski 116* (BR, M). **Guerrero**: east of Acapulco, alt. 600 m, 3 Mar. 1932, *C. Plummer 2651* (MO). **México**: near Temascaltepec, alt. 1800 m, 25 Mar. 1933, *G.B. Hinton 2385* (MO). **Michoacán**: Temascaltepec, Tempincla, 7 Mar. 1932, *G.B. Hinton 354* (K); Temascaltepec, Ypericones, 25 Mar. 1933, *G.B. Hinton 3650* (K); Tzaráracua, south of Uruapan, alt. 1350 m, 5 Mar. 1934, *O. Nagel 2258* (MO). **Chiapas**: Venustiano Carranza, near Aguacatenango Center, alt. 5,900 ft., 28 Feb. 1965, *D.E. Breedlove 9198s* (US); Hda. Sta. Maria de los Arcos, alt. 1450 m, 28 Mar. 1936, *O. Nagel 4555* (holoype of var. *cleistogama*: AMES; isotype: US); trail between Finca California and Monte Ovando, alt. 450-850 m, 14 Feb. 1979, *T.B. Croat 47549* (MO); road to Lago de Montebello, alt. 1580 m, 12 Mar. 1982, *M.W. Chase 82129* (AMO, MICH). (holotype of *P. ghiesbrechtiana*: P). **Veracruz**: Jalapa, Paso del Toro, alt. 1000 m, 1 Apr. 1935, *O. Nagel & J. Gonzales 4681* (holotype of var. *cleistogama*: MO); var. *cleistogama*: Tucuapan, Dr. Purpus, 28 Feb. 1907, rec. *H. Schenck s.n.* (BR).
GUATEMALA: without locality, *U. Skinner 22* (K); Duluas, alt. 5,000 ft., 1862, *Mssrs. Salvia & Goodman 275*.
HONDURAS: between Chaparral and Pueblo de Mambar, road from Compagua to Puerto Cortes, *Niederlein s.n.* (holotype of *P. niederleinii* destroyed at B; lectotype here designated: AMES 23655, illustr. of type).
SALVADOR: **Ahuachapán**: San Benito, west of Las Escaleras, 16 Nov. 1992, *E. Sandoval & M. Sandoval 830* (B, K, LAGU, MO).
NICARAGUA: collected by Oersted, Apr. 1881, cultivated by *Mr. Bull 608* (holotype of *P. nicaraguensis*: W).
COSTA RICA: **Cartago**: near Catalina, Nov. 1847, *Oersted 7312, 7313* (C); without locality, ca. 1867, *A. Endres 316, 704, 1160* (W); Forests of Nicoya, Dec. 1899, *A. Tonduz 13731* (holotype of *P. lyroglossa* destroyed at B; lectotype here designated: AMES 23649, illustr. of type). **Alajuela**: Barranca de San Ramón, alt. 900 m, 6 Feb. 1983, *A. Carvajal U. 327* (MO); San Miguel Oeste, Naranjo, Cerro Espíritu Santo, alt. 1000-1200 m, 1 Dec. 1988, *G. Herrera 2333* (MO). **Puntarenas**: Osa, Buenos Aires, Fila Retinto, alt. 780-960 m, 9 Dec. 1988, *M. Grayum & G. Herrera 9147* (CR, MO).
Without collection data, cultivated by *C. Loddiges s.n.* (holotype of *P. longissima*: K).
VENEZUELA: Caracas, alt. 5,000 ft., *H. Wagener 563* (W); Caracas, *H. Wagener 169* (holotype of *P. incompta*: W), C. Luer illustr. 17002; Colonia Tovar, 1854-56, *A. Fendler 1462* (K); Caracas, 1851, *M. Herments s.n.* (W). Caripe, shade trees of coffee plantations, Feb. 1958, *G.C.K. Dunsterville 446*.
COLOMBIA: reported.
CUBA: Oriente, *C. Wright 616* (W).
JAMAICA: without locality, 1838, *McFadyen s.n.* (K); June 1843, *Purdie s.n.* (K); "lowlands," Nov. 1881, *J.P. Syme & D. Morris 2331* (K, NY); Fairfield, *Wullschlaegel 1383* (M, W); without locality, *W. Harris 8118* (BR). Vinegar Hill, alt. 1200 m, 23 June 1904, *W.R. Maxon 2785* (NY). **St. Thomas**:

Maccasucker Bump, alt. 825-1025 m, 25 June 1926, *W.R. Maxon 9554* (AMES, NY, US); Stone Hole Bump, alt. 600-800 m, 9 June 1926, *W.R. Maxon 8992* (NY); between House Hill and Cuna Cuna Gap, alt. 550-725 m, 7 June 1926, *W.R. Maxon 8880* (AMES, BM, NY, US). Clarendon Parish, southwest of Cave Valley, south of Broom Hall, alt. 670 m, Aug. 1985, *D.L. Kelly 7127* (TCD). St. Ann: Mt. Diablo, alt. 700 m, 24 May 1952, *F.A. Barkley 22J363* (AMES, NY, US).
DOMINICAN REPUBLIC: reported.
HAITI: reported.
PUERTO RICO: Ponce, Adjuntas road, 28 Mar. 1931, *N.L. Britton & E.G. Britton 9728* (AMES, NY, UPR, US); Maricao, 26 May 1960, *R.O. Woodbury s.n.* (UPR); San Germán: Maricao Forest Reserve, Sendero Santana, alt. 600-650 m, 9 Mar. 1986, *J.D. Ackerman, M. Galarza et al. 2236* (UPRRP).

This large species, although widely distributed throughout Central America, the Greater Antilles and across northern South America, is nowhere abundant. It is characterized by the oblong, glaucous leaves; a stout ramicaul about as long; and a lax raceme of relatively large, yellow flowers. The lateral sepals are connate into a synsepal a little larger than the dorsal sepal. The petals are large and obtuse. The lip is large and pandurate with a broadly rounded apex, and a short, unguiculate base.

Although this species is included here in subgenus *Effusia* because of some key features, it probably is not closely allied with the other species.

Pleurothallis resupinata Ames, Orchidaceae 2: 272, 1908.

Ety.: From the Latin *resupinatus*, "resupinate," referring to the position of the flowers.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 2-4.5 cm long, mostly enclosed by a tubular sheath, with 2-3 shorter sheaths above the base. **Leaf** mottled with purple, erect, coriaceous, elliptical, subacute to obtuse, 2.5-5.5 cm long, 0.8-1.5 cm wide, cuneate below into a petiole ca. 0.5 cm long. **Inflorescence** a loose, subsecund, successively flowered raceme, several flowers simultaneously, 5-15 cm long including the peduncle ca. 3 cm long, subtended by a spathe ca. 3 mm long, from near the apex of the ramicaul, floral bracts tubular, 3 mm long; pedicels slender, 2-4 mm long; ovary spotted with purple, 2 mm long; **sepals** rigidly fleshy, carinate-crested, mottled dark-purple on green, the dorsal sepal elliptical-ovate, acute, concave, 6 mm long, 1.5-2 mm wide, 3-veined, essentially free from the laterals at the base, the lateral sepals connate into a concave, oblong, shortly bifid synsepal, 5.5 mm long, 3 mm wide unexpanded, 6-veined, the apices acute, in apposition; **petals** white, dotted with purple, obovate, rounded to obscurely bilobed at the apex, 3 mm long, 1.5 mm wide, 1-veined; **lip** white, dotted with purple, oblong, 3.5-4 mm long, 1 mm wide, the apex rounded, minutely denticulate-verrucose, the sides erect near the middle with a low, minutely verrucose carina within the margin, the disc shallowly concave between the calli, the base truncate, bilobulate, hinged to the tip of the column-foot; **column** greenish white, narrowly winged above the middle, denticulate at the apex, 3 mm long, the foot 1 mm long, the anther and stigma ventral.

MEXICO: **Michoacán**: on oaks near Uruapan, alt. 5,000 ft., 15 Nov. 1905, *G.C. Pringle 10135* (Holotype: AMES; Isotypes: BM, HB, HBG, JE, K, LE, M, MO, NY, US, W); Uruapan, alt. 1950 m, 10 Feb. 1940, *G.B. Hinton et al. 15446* (K, NY, W); Malpais de Curucu, near San Juan Nuevo, west of Uruapan, 29 July 1961, *R.L. Dressler & M. Wirth 2752* (MO); between Patzcuaro and Uruapan, alt. 2400 m, collected by R. McCullough, cultivated 5 Aug. 1976, *C. Luer 063* (SEL); near Uruapan, Patzcuaro pass, collected Mar. 1975 by R.L. Stone, cultivated at Los Altos Hills, CA, 14 Dec. 1978, *C. Luer 3639* (SEL); without locality, obtained from W. Bussy, cultivated by J & L Orchids, 30 May 1997, *C. Luer 18495* (MO).

This species, closely allied to sympatric *P. longispicata*, is endemic in the mountains of southern Mexico. *Pleurothallis resupinata* is characterized by the proportionately long, lax, secund raceme that far surpasses the leaf. The sepals are fleshy, carinate, with dark purple blotches and glabrous; the petals are obovate; and the lip is narrowly oblong with carinae inside the margins near the middle.

Pleurothallis retusa (La Llave) Lindl., Bot. Reg. 28: Misc. 81, 1842.

Bas.: *Dendrobium retusum* La Llave, Nov. Veg. Descr. 2: 40, 1825.

Ety.: From the Latin *rutusus*, "retuse," possibly referring to the synsepal.

Syn.: *Specklinia retusa* (La Llave) Lindl., Bot. Reg. 21: sub t. 1797, 1835.

Syn.: *Humboldtia retusa* (La Llave) Kuntze, Rev. Gen. Pl. 2: 668, 1891.

Syn.: *Pleurothallis hieroglyphica* Ames, Orchid. 2: 269, 1908.

Ety.: From the Latin *hieroglyphicus*, "hieroglyphic," in allusion to the markings on the sepals.

Syn.: *Pleurothallis aristocratica* L.O.Williams, Bot. Mus. Leafl. 12: 237, 1946.

Ety.: From the Latin *aristocratia*, "aristocratic," in allusion to the superior flowers.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 2-7 cm long, enclosed by a tubular sheath from below the middle, and 2-3 shorter sheaths above the base. **Leaf** coriaceous, erect, narrowly elliptical-obovate, subacute to obtuse, 4-8 cm long, 1-1.5 cm wide, narrowly cuneate below into a subpetiolate base. **Inflorescence** an erect, subcongested, distichous, successively several-flowered raceme, 2-5 cm long including the peduncle ca. 1 cm long, subtended by a spathe ca. 3 mm long, from near the apex of the ramicaul; floral bracts tubular, 2-3 mm long; pedicels 3 mm long; ovary 3 mm long; **sepals** yellow-green, variously suffused and spotted with purple, fleshy, carinate, glabrous externally and internally, the dorsal sepal elliptical-obovate, obtuse, concave, 8 mm long, 3 mm wide, 3-veined, free from the laterals, the lateral sepals connate to near the apex into a recurved, oblong synsepal, concave basally with a mentum below the column-foot, 7 mm long, 4.5 mm wide, the apices obtuse, in apposition; **petals** purple, oblique, spathulate, broadly obtuse, narrowly unguiculate, 3.5 mm long, 2 mm wide; **lip** green, marked with purple, sagittate-trilobed, long-unguiculate, 3 mm long, 2 mm wide expanded, the apex ovate, rounded, the lateral lobes erect, rounded, near the middle, the disc with a parallel pair of carinae, and a smaller pair of carinae between, the claw slender, 1 mm long, minutely biauriculate at the base, hinged to the tip of the column-foot; **column** spotted with purple, broadly winged, serrate, 3 mm long, the foot thick, 2 mm long, the anther and stigma ventral.

MEXICO: Without collection data, *Lexarza* (Holotype: lost). Without locality, collected by Pringle, cultivated at Ames' greenhouse 30 July 1904, *C.G. Pringle s.n.* (syntype of *P. hieroglyphica*: Neotype of *P. retusa* here designated: AMES); cultivated at Ames' greenhouse 27 Sept. 1904, *C.G. Pringle s.n.* (syntype of *P. hieroglyphica*: AMES). Without locality, ca. 1877 *Kienart s.n.* (W as "porphyrosticta"). **Michoacán**: Temascaltepec, Cumbre, 4 Nov. 1934, *G.B. Hinton et al. 6812* (K). **Oaxaca**: mountain near Oaxaca, alt. 6,000-7,000 ft., Dec. 1954, *R. Oberg 224* (AMES). **Chiapas**: south of Tenancingo, 5 Aug. 1959, *R.L. Dressler 2532* (BM, MO); northeast of Temascaltepec, alt. 2080 m, 25 Oct. 1983, *M.W. Chase 83393 (MICH, MO).* ***Guerrero****: region of Teneria northwest of Taxco, alt. 2300 m, 23 July 1932, Juan Gonzales 1065* (MO); near Omiltemi, alt. 1840 m, 22 April 1935, *J. Gonzáles 3245* (holotype of *P.* aristocratica*: AMES).*

This Mexican species was poorly described by today's standards, and consequently had been ignored. It is characterized by a small habit with ramicauls shorter than narrowly elliptical leaves, and a successively flowered raceme that does not surpass the leaf in length. The sepals are glabrous and variously mottled with purple. The synsepal is arcuate with a retuse apex. The petals are broadly spathulate with a narrow claw. The lip is hastate when the erect, rounded, lateral lobes are expanded above the narrow, elongated claw. The collection described as *P. aristocratica* has larger flowers with an accessory pair of veins in the dorsal sepal. Otherwise, there are no specific differences.

Pleurothallis scabrata Lindl., Folia Orch. *Pleurothallis* 30, 1859.

Ety.: From the Latin *scabratus*, "scabrous," referring to the serrulate margins of the petals.

Syn.: *Humboldtia scabrata* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 668. 1891.

Syn.: *Pleurothallis humboldtiana* Luer, Selbyana 3: 120, 1976.

Ety.: Named for Alexander von Humboldt, early explorer of the Andes.

Plant large, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 10-16 cm long, with a close, tubular sheath below the middle and 2-3 other sheaths at the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, 10-15 cm long, 2-4 cm wide, cuneate below into an ill-defined petiole ca. 1 cm long. **Inflorescence** an erect to arching, secund, loose, simultaneously several- to many-flowered raceme, 20-30 cm long including the peduncle ca. 10 cm long, subtended by a narrow spathe 1-1.5 cm long; floral bracts tubular, oblique, 4-5 mm long; pedicels 6-10 mm long; ovary spotted, 3-7 mm long; **sepals** green, suffused and spotted with brown or purple, glabrous, the dorsal sepal narrowly ovate, acute, 13-19 mm long, 4-6 mm wide, 3-veined, the lateral sepals connate into an ovate, acute to obtuse lamina, 13-19 mm long, 4-6 mm wide, 6-veined; **petals** suffused with brown or purple, ovate, acute, 9-12 mm long, 3 mm wide, with the margins minutely serrulate above the middle and more or less scabrous externally; **lip** white, spotted with purple, 3-lobed, 5-7 mm long, 4 mm wide across the lobes, the apex yellowish, ovate, acute with the margins minutely serrulate, the lobes erect, broadly rounded in the middle third, the disc with a low pair of carinae on the middle third, narrowed below into a bilobulate base, hinged to the column-foot; **column** greenish white, suffused and dotted with brown, semiterete, 4 mm long, the foot thick, 1 mm long, the anther, rostellum and stigma ventral.

BOLIVIA: **La Paz**: without locality, *Bridges s.n.* (Holotype: K): Nor Yungas near Chulumani, cultivated in Chulumani by Dino Menato, 1 Feb. 1980, *C. Luer 5047* (SEL).
PERU: **Amazonas**: Chachapoyas, Cerros Calla Calla above Leimebamba, alt. 2535 m, 17 Mar. 1964, *P.C. Hutchison & D.E. Bennett 4623* (AMES, UC); Bongara, south of Pomacochas, alt. 7850 ft., 1 Apr. 1944, *W.H. Hodge 6145* (AMES). Without locality, obtained from Fred Fuchs, cultivated by J & L Orchids, 1975, *C. Luer 599* (holotype of *P. humboldtiana*: SEL).
ECUADOR: **Morona-Santiago**: east Andes of Sigsig, alt. 1600-2000 m, May 1887, *F.C. Lehmann 6496* (K); at pass north of Gualaquiza, alt. 1500 m, 17 Mar. 1982, *C. Luer, J. Luer & A. Hirtz 8699* (SEL). **Loja**: south of Loja, alt. 2400-2500 m, 18 Apr. 1946, *R. Espinosa 183* (AMES, LOJA); Parqué Nacional Podocarpus, Cerro Toledo, alt. 2600 m, 27 Feb. 1985, *B. Øllgaard et al. 58355* (AAU, QCA); Cerro Toledo, southeast of Yangana, alt. 2500 m, 7 Apr. 1985, *G. Harling & L. Andersson 23850* (GB); Nudo de Sabanilla, south of Yangana, alt. 2500 m, 24 Feb. 1988, *U. Molau & B. Eriksen 3195* (GB).

This handsome species is known to occur in the Andes from southern Ecuador into Bolivia. It is superficially similar to *P. restrepioides* Lindl. of subgenus *Elongatia*. However, the serrulate petals and a lip flexibly hinged by a bilobulate base exclude it from that subgenus. Within subgenus *Effusia*, it is also an exception with the serrulate petals, but the lip is in agreement. It is most similar to the rare *P. hamiltonii*.

Pleurothallis scabrata is distinguished by the large habit with large, oblong leaves, and a stout, equally long ramicaul. From a comparatively small spathe, a long, loose raceme of large, spotted flowers surpasses the leaf. The narrowly ovate dorsal sepal and synsepal are similar. Above the middle, the petals are narrowed, thickened, and acute with minutely serrated margins. The lip is arcuate with large, erect, marginal lobes that are usually well demarcated from the smaller, apical lobe. Below the lobes, the lip is broadly unguiculate and truncate with a lobule at the corners.

Pleurothallis tarantula Luer & Hirtz, Lindleyana 11: 186, 1996.

Ety.: Named for the similarity of the hairy flowers to a spider of the genus *Tarantula*.

Plant large, epiphytic, caespitose; roots slender. Ramicauls stout to slender, erect, 15-50 cm long, with a tubular sheath above the middle and 2 other sheaths at the base. **Leaf** erect, coriaceous, ovate, acute to subacute, 12-22 cm long, 5-15 cm wide, the base cuneate to rounded, contracted into a petiole 1.5 cm long. **Inflorescence** an erect, strict, congested, more or less simultaneously several-flowered raceme up to 8 cm long including the peduncle 3-4 cm long, borne behind the leaf, from a spathe 1.5-3 cm long at the apex of the ramicaul; floral bracts oblique, acute, 4 mm long; pedicel 2-5 mm long; ovary 4-5 mm long; **sepals** dark purple, fleshy, densely long-pubescent within, the dorsal sepal spathulate, obtuse, 12-15 mm long, 7 mm wide, recurved above the unguiculate base, the lateral sepals connate 9

mm into a broadly elliptical, obtuse, bifid lamina, 12-14 mm long, 9 mm wide, apices free for 1 mm; **petals** dark purple, cuneate-spathulate, subtruncate, 5 mm long, 3 mm wide at the apex; **lip** dark red-purple, oblong, arcuate, 4 mm long, 1.5 mm wide, the apex subtruncate, with reclining spicules, denticulate, the margins thin, erect and broadly rounded below the middle, the disc with a pair of longitudinal calli parallel to the margins, minutely subverrucose above the base, the base broad, membranous, biauriculate, delicately hinged to the column-foot; **column** broadly winged, with minutely denticulate margins, bidentate at the apex, 4.5 mm long, the foot thick, 2.5 mm long, the anther, rostellum and stigma ventral.

ECUADOR: **Morona-Santiago**: Cordillera del Condor, epiphytic in cloud forest east of Guismé, alt. 1750 m, 21 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13553* (Holotype: MO; Isotypes: K, QCNE).
COLOMBIA: **Antioquia**: Yarumal, epiphytic in forest above the road to El Cedro, alt. 1900 m, 17 Mar. 1989, *C. Luer, J. Luer, S. Dalström & W. Teague 14212* (MO).

Basically this species is similar to *P. imraei*, a common, sympatric species. Both species bear the flowers in a short raceme behind the leaf. When a flowering specimen of *P. tarantula* is discovered in the dense forest, and the large leaf is lifted or bent to see what is behind, the viewer is treated to a shock, especially if his fingers touch the cluster of large, dark purple, hairy flowers that resemble a cluster of big spiders. It is a memorable experience. Except for the size, the details of the flowers are very similar to those of *P. imraei*.

Pleurothallis thomasii Luer, sp. nov.

Ety.: Named for Hawkins Thomas, who collected this species.

Species haec *P. villosae* Fawc. & Rendle persimilis, sed floribus multiminoribus flavis immaculatis et pedicelis brevissimis differt.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, compressed above the middle, 5-12 cm long, compressed above, with a tubular sheath below the middle, and 2-3 sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute to narrowly obtuse, 4-6 cm long, 0.8-1.2 cm wide, cuneate below into the sessile base. **Inflorescence** a lax, distichous, strict, successively few-flowered raceme with 1-2 flowers open simultaneously, to 7 cm long including the peduncle 3-5 cm long, subtended by a spathe 4 mm long, from the apex of the ramicaul at the base of the leaf; floral bracts 2 mm long; pedicels 1.5 mm long; ovary 1.2 mm long; **sepals** yellow, with long, villous hairs within, the dorsal sepal elliptical-obovate, obtuse, concave, 4 mm long, 3 mm wide expanded, 3-veined, connate to the laterals for 1 mm, the lateral sepals connate 1 mm into an obovate, concave, bifid synsepal, 3.75 mm long, 3 mm wide expanded, the apices obtuse, in apposition; **petals** translucent, obovate-spathulate, rounded at the apex, 2.5 mm long, 1 mm wide; **lip** oblong-unguiculate, arcuate, 2.4 mm long, 1 mm wide, the blade oblong, round at the apex, with a pair of calli inside the margins, angled above the claw, the claw 0.8 mm long, with a minute lobule at each corner of the base, hinged to the tip of the column-foot; **column** narrowly winged, denticulate at the apex, 2.2 mm long, the foot 0.5 mm long, the anther and stigma ventral.

HONDURAS: **Olancho**: La Muralla National Park, northwest of La Union, alt. 1520 m, 6 June 1992, *Hawkins Thomas & D. Mijia 510* (Holotype: EAP; Isotype: MO), C. Luer illustr. 19314.

This species, known from only one collection in Honduras, is related to the relatively frequent, Central American *P. villosa*, but differs from it by having smaller, yellow, unspotted, shortly pubescent flowers borne in a shorter, more congested raceme by short pedicels barely as long as the floral bracts. The raceme of *P. villosa* is loosely few-flowered with the flowers long-villous within and borne by long pedicels.

Pleurothallis tortilis Luer & Escobar, Orquideología 14: 180, 1981.

Ety.: From the Latin *tortilis*, "twisted," referring to the petiole of the leaf.

Plant medium to large, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 11-25 cm long, with a tubular sheath below the middle and 2-3 other sheaths about the base. **Leaf** erect, thickly coriaceous, elliptical-oblong, subacute to obtuse, petiolate, 8-13 cm long, 3-5 cm wide, cuneate below into the channeled, twisted petiole 1-1.5 cm long. **Inflorescence** 1-6 loose, secund, simultaneously several-

flowered racemes, 3-9 cm long including the peduncle 2-3 cm long, borne behind the leaf, with a spathe 1 cm long from the apex of the ramicaul, 2 mm below the abscission layer; floral bracts 3-4 mm long; pedicels 4-6 mm long, erect along the rachis; ovary curved, 3-4 mm long; **sepals** yellow, glabrous, rigidly fleshy, carinate, the dorsal sepal elliptical, subacute, concave, 7.5 mm long, 2.5 mm wide, the lateral sepals connate to near or above the middle into a concave, oblong, bifid, obtuse synsepal, 7 mm long, 3.5 mm wide; **petals** yellow, obovate, obtuse, concave, 4 mm long, 2.5 mm wide, with 3 brown or purple veins prominent externally; **lip** purple, oblong-trilobed, 3.25 mm long, 1.25 mm wide unexpanded, narrowed above the middle, the apex cuneate, truncate, the margins below the middle erect with tall, longitudinal, intramural carinae, with a low, midline keel between, the base expanded, hinged to the column-foot; **column** semiterete, 2.5 mm long, the foot thick, 1 mm long, the anther ventral but protruding, and the stigma ventral.

COLOMBIA: **Cauca**: San Sebastian, road from La Vega to Páramo de Barbillas, alt. 3070 m, 27 July 1978, *C. Luer, J. Luer, R. Escobar et al. 3021* (Holotype: SEL; Isotype: JAUM).
ECUADOR: **Carchi**: between El Pun and Tulcán, Nov. 1952, *F. Fagerlind & G. Wibom 1376* (S). **Loja**: Cerro Toledo, southeast of Yangana, alt. 2500 m, 7 Apr. 1985, *G. Harling & L. Andersson 23850* (GB); Nudo de Sabanilla south of Yangana, alt. 2500 m, 24 Feb. 1988, *U. Molau & B. Eriksen 3195* (AAU, GB). **Napo**: Papallacta, alt. 3100-3300 m, 15 June 1968, *G. Harling, G. Storm & B. Ström 10333* (GB); between Papallacta and Cuyuja, alt. 2500 m, June 1989, *A. Hirtz & X. Hirtz 4252* (MO), C. Luer illustr. 14938.

This uncommon relative of the frequent *P. imraei* occurs locally in southern Colombia and northern Ecuador. It is characterized by racemes no longer than the leathery leaf, and borne from the base of a twisted petiole to rise along the back side of the leaf. The flowers are fleshy with obtuse sepals, the laterals connate to above the middle into a concave synsepal. The petals are spathulate and concave with three purple veins externally. The lip is oblong with the apex truncate and with a pair of tall, rounded, intramural lamellae on the middle third, and a lower lamella between.

Pleurothallis trichostoma Luer, Selbyana 5: 185, 1979.

Ety.: From the Greek *trichostoma*, "hairy mouth," referring to the flower.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 6-12 mm long, enclosed by a tubular sheath and 2 short sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute to subacute, 3-4.5 cm long including an indistinct petiole less than 1 cm long, 1-1.6 cm wide, gradually narrowed below into the subpetiolate base. **Inflorescence** a weak, suberect to arching, lax, distichous, flexuous, successively several-flowered raceme, up to 10 cm long including the peduncle 3-4 cm long, subtended by a spathe 3 mm long from an annulus below the apex of the ramicaul; floral bracts 1 mm long; pedicels 5 mm long; ovary 2 mm long; **sepals** light yellow, mottled with purple along the veins, densely long-pubescent within with the hairs white on the dorsal sepal and purple on the synsepal, subcarinate, the dorsal sepal obovate, subacute to obtuse, 5 mm long, 2 mm wide, 3-veined, the lateral sepals connate to the apex into a concave, ovoid, obtuse synsepal, 5 mm long, 3 mm wide, concave centrally; **petals** translucent red, spathulate, concave, rounded at the apex, unguiculate, 2.5 mm long, 1.5 mm wide, 3-veined, callous along the midvein externally and protruding beyond the margin; **lip** yellow, subtrilobed, unguiculate, slightly arcuate, 2 mm long, 0.75 mm wide, the lateral lobes erect, broadly rounded, the disc with a pair of longitudinal carinae, each within the margin and converging at the apex, the apex subserrulate, narrowly obtuse, the claw 0.5 mm long, truncate, bilobulate, hinged to the column-foot; **column** red, semiterete, with a long-aristate apex, 2.5 mm long, the foot 1 mm long, the anther, rostellum and stigma ventral.

ECUADOR: **Zamora-Chinchipe**: between Loja and Zamora, altitude not recorded, collected by J. Brenner, cultivated at Puyo, 1 Aug. 1977, *C. Luer 1795* (Holotype: SEL).

This species is known from a single collection in an orchid-rich area of southeastern Ecuador. It is related to the variable *P. flexuosa*, but vegetatively and florally it is considerably smaller. It differs most significantly in the lip lacking the midline callus above the claw that is present in all sizes of flowers of *P. flexuosa*. In addition, the apex of the column is narrowly long-triangular and protruding.

Pleurothallis tripterantha Rchb.f., Bonplandia 2: 24, 1854.

Ety.: From the Greek *tripteranthos*, "three-winged flower," referring to the tall-carinate ovaries and sepals.

Syn.: *Pleurothallis tripterygia*, Rchb.f., Bonplandia 2: 24, 1854.
Ety.: From the Greek *triptergion*, "three-finned," referring to the finlike carinae of the sepals and ovary.

Syn.: *Pleurothallis procumbens* Lindl., Folia Orch. *Pleurothallis* 35, 1859.
Ety.: From the Latin *procumbens*, "leaning forward or downward," referring to the scandent habit.

Syn.: *Lepanthes tricarinata* Barb.Rodr., Gen. Sp. Orch. Nov. 2: 43, 1882, not *P. tricarinata* Poepp. & Endl., 1836.
Ety.: From the Latin *tricarinatus*, "tricarinate," referring to the ovary and sepals.

Syn.: *Humboldtia procumbens* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 668, 1891.

Syn.: *Humboldtia tripterantha* (Rchb.f.) Kuntze, Rev. Gen. Pl. 2: 668, 1891.

Syn.: *Humboldtia tripterygia* (Rchb.f.) Kuntze, Rev. Gen. Pl. 2: 668, 1891.

Syn.: *Pleurothallis trialata* Cogn., Fl. Bras. 3(4): 500, 1896, *nom. nov.*
Ety.: From the Latin *trialatus*, " three-winged," referring to the flowers and ovaries.

Syn.: *Masdevallia tricarinata* Lehm. & Kraenzl., Bot. Jahrb. Syst. 26: 456, 1899, not *P. tricarinata* Poepp. & Endl., 1836.

Syn.: *Pleurothallis hamata* Rolfe, Orch. Rev. 24: 187, 1916, *nomen nudum*; ex Ames, Sched. Orch. 3: 8, 1923.
Ety.: From the Latin *hamatus*, "hooked at the tip," in allusion to recurving of tips of some sepals.

Syn.: *Pleurothallis medellinensis* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 7: 236, 1920.
Ety.: Named for the city of Medellín, Colombia, near where the species was collected.

Syn.: *Masdevallia carpophora* Kraenzl., Repert. Spec. Nov. Regni Veg. 17: 427, 1921.
Ety.: From the Greek *carpophoros*, "fruit-bearing," referring to the cleistogamous flowers.

Syn.: *Masdevallia aperta* Kraenzl., Repert. Spec. Nov. Regni Veg. 17: 430, 1921.
Ety.: From the Latin *apertus*, "open," referring to the open flower as compared to those closed.

Syn.: *Pleurothallis hunteriana* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 17: 20, 1922.
Ety.: Named for a Mr. Hunter, collector of this species.

Syn.: *Pleurothallis aperta* (Kraenzl.) Ames, Sched. Orch. 7: 17, 1924.

Syn.: *Scaphosepalum carpophorum* (Kraenzl.) Garay, Bot. Mus. Leafl. 21: 251, 1967.

Plant small to large, epiphytic, shortly repent to caespitose; roots slender. Ramicauls slender or stout, 0.5-3 cm long, enclosed by 2 tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical to narrowly obovate, subacute to acute, 5-18 cm long, 1-2 cm wide, the base narrowly cuneate into an ill-defined petiole 1-5 cm long. **Inflorescence** a lax, simultaneously few- to many-flowered raceme, 3-44 cm long, including the peduncle 2-10 cm long, produced laterally from the ramicaul; flowers often cleistogamous; floral bracts 3-5 mm long; pedicels 4-8 mm long; ovary 2-4 mm long, tall-winged; **sepals** fleshy, tall-carinate, greenish or yellowish, variously mottled, spotted or dotted with purple, brown, or red, glabrous, the dorsal sepal narrowly scaphoid, acute, concave, 7-22 mm long, 1-2.5 mm wide, 1-2 mm deep, 3-veined, free from or adherent to the lateral sepals, the lateral sepals narrowly ovate, acute, connate 5-11 mm, or adherent above the middle, into a bifid, scaphoid synsepal, 7-22 mm long, 4-7.5 mm wide unexpanded; **petals** translucent yellow or white, variously spotted or veined in red or purple, glabrous, elliptical-obovate, acute, 2-6 mm long, 1-2 mm wide, 2- to 3-veined; **lip** white, dotted with purple, narrowly elliptical-oblong, obtuse, 4-8 mm long, 1.5-2.5 mm wide, shallowly sulcate between low, minutely verrucose calli along the middle third to near the apex, the apex minutely verrucose, the base truncate, hinged to the column-foot; **column** longitudinally winged, 2-5 mm long, dentate at the apex, the anther, rostellum and stigma ventral, the foot thick, 1-2 mm long.

VENEZUELA: "Caracas," alt. 5,000 ft., May 1852, *H. Wagener 120* (Holotype: W); "Caracas," *H. Wagener 145* (holotype of *P. tripterygia*: W); Without data, *Lansberg s.n.* (W). **Zulia**: Sierra de Perijá, Río Omira-Kuná, alt. 1500-1800 m, 27 Mar. 1972, *J.A. Steyermark & G.C.K. & E. Dunsterville 105667* (AMES, VEN). Without locality, collected by A. Mejía, cultivated in Medellín, Colombia, 7 Oct. 1977, *C. Luer 1939* (SEL).
PANAMA: **Chiriquí**: without locality, Feb. 1923, *C.W. Powell 277* (AMES); alt. 4,500 ft., Oct., *C.W. Powell 245* (AMES); alt. 4,000 ft., 6 July 1919, *C.W. Powell 109* (holotype of *P. hunteriana* destroyed at B; lectotype here designated: AMES, isolectotype: K).
COSTA RICA: **Alajuela**: La Palma, Río Blanco between Santa Rosa and San Luis, alt. 1400 m, 18 Apr. 1961, *C. Horich 60-9-21* (MO). **Cartago**: Río Paquita, above the San Marcos bridge, ca. 1867, *A. Endres s.n.* (holotype of *Masdevallia aperta*: W). **San José**: Candelaria, Taburcia, also Río Parrita, Dota, ca.

1867, *A. Endres s.n.* (W); without data, *A. Endres s.n.* (W: as "P. trionychia"); . Without locality, flowered in cultivation at K, 31 July 1916, *C. Lankester 350-15* (holotype of *P. hamata*: W; isotype: AMES); cultivated at K, 2 Aug. 1922 (K).
COLOMBIA: **Antioquia**: terrestrial, around Hato Viejo near Medellín, alt. 1800 m, *F.C. Lehmann 8240* (holotype of *Masdevallia tricarinata* destroyed at B); Quebrada Agua Clara, near Palmira, alt. 5,000-6,000 ft., Oct. 1877, *F.C. Lehmann 134* (W). **Antioquia**: Alto Murinde, collected by L.C. Vieira, cultivated in Medellín, 25 Oct. 1979, *C. Luer 4338* (SEL); Frontino, collected by H. Angarita, cultivated at Colomborquídeas, 16 May 1993, *C. Luer 16883* (MO). Without collection data, cultivated by M. & O. Robledo at La Ceja, 9 Apr. 1988, *C. Luer 13090* (MO).
ECUADOR: **Tungurahua**: southeast of Patata overlooking Baños, alt. 3070 m, 2 June 1971, *B. MacBryde 405* (AMES). **Napo**: between Baeza and Cosanga, alt. 1800 m, 14 Apr. 1985, *C. Luer, J. Luer & A. Hirtz 11267* (MO).
PERU: **Muña**: alt. 7,000 ft., 23 May-4 June 1923, *J.F. Macbride 4038* (AMES, F). **Junín**: Colonia Perene, alt. 680 m, 14-22 June 1929, *E.P. Killip & A.C. Smith 25092* (AMES, US). **Amazonas**: Chachapoyas, between Ingenio and Pomacochas, alt. 1700 m, 28 May 1963, *A. López, A. Segástegui & V. Collantes 4277* (AMES, HUT).
BOLIVIA: **Cochabamba**: Chapare, between Cochabamba and Villa Tunari, alt. 1200 m, 17 Jan. 1988, *C. Luer, J. Luer & R. Vásquez 12855* (MO). **Santa Cruz**: south of Yapacaní, alt. 650 m, 7 Sept. 1991, *C. Luer, J. Luer, L. Moreno & D. Ric 15404* (MO).
BRAZIL: **Paraná**: Guaraqueçaba, Serrinha, 9 Aug. 1967, *G. Hatschbach 16880* (C). **São Paulo**: Amparo, Tres Pontes, 28 May, 1927, *F.C. Hoehne s.n.* (AMES, SP-20572). **Rio de Janeiro**: without locality, *A. Glaziou 14325* (BR); Alto Macahé, Jan. 1891, *A. Glaziou s.n.* (BR).

This species is relatively frequent in its wide distribution in tropical America at moderate altitudes. Individuals and populations vary greatly in size, both florally and vegetatively. The ramicauls are much shorter than the narrow leaves they bear. The inflorescence is pendent or arching, and more or less simultaneously flowered. The flowers are commonly cleistogamous. The sepals are fleshy with a tall carina that includes the ovary. The petals and lip are simple.

Reichenbach and Lindley recognized the species as *Pleurothallis*, which seems obvious with all the necessary criteria. Reichenbach described first two variations simultaneously, the first epithet being accepted. Kränzlin described variations of the species three times in *Masdevallia*, and Garay transferred one of these names to *Scaphosepalum*.

Pleurothallis trulla Rchb.f. & Warsz., Bonplandia 2: 114, 1854.

Ety.: From the Latin *trulla*, "a dipper or a scoop," in allusion to the lip with a claw.

Humboldtia trulla (Rchb.f.) Kuntze, Rev. Gen. Pl. 2: 668. 1891.

Plant medium to large, presumably epiphytic, roots unknown. Ramicaul broken off below the leaf. **Leaf** erect, coriaceous, fleshy, elliptical, obtuse to subacute, sessile, 9 cm long, 2 cm wide in the dried state, cuneate below into the base. **Inflorescence** 1-3 loose, secund, simultaneously several-flowered racemes, 18-22 cm long including the peduncle ca. 8 cm long, from near the apex of the ramicaul; floral bracts 5 mm long, 5 mm apart; pedicels ca. 5 mm long; ovary 3 mm long; **sepals** pubescent within, carinate, the dorsal sepal elliptical, concave, acute, 10 mm long, 4 mm wide, the lateral sepals connate to the apex into an elliptical, obtuse, concave synsepal, 9 mm long, 5 mm wide; **petals** translucent, obovate, obtuse to rounded at the apex, unguiculate, 6 mm long, 2.5 mm wide, 3-veined; **lip** ovate, unguiculate, the blade 3 mm long, 3 mm wide expanded, the apex obtuse, decurved, the margins erect, obtusely angled above the claw, the disc with a longitudinal, flap-like callus 2 mm long on each side, the claw slender, 1.5 mm long, hinged to the column-foot; **column** slender, 4 mm long, the foot thick, 3 mm long, the anther hooded, ventral, and the stigma ventral.

PERU: Without locality, *J. Ritter von Warszewicz 565* (Holotype: W; Isotype: K), C. Luer illustr. 18577.

This species is known only from the single collection made by Warszewicz somewhere in Peru. The specimen was broken off a short distance below the solitary leaf, but three elongated racemes with a few flowers remain. The sepals are carinate, pubescent within, and the lateral sepals are completely connate into a concave synsepal. The petals are broad and unguiculate. The blade of the lip broadly ovate with erect angles above a narrow claw, and with a longitudinal callus on either half. The calli are unusual because they are concave medially, creating a pair of crescent-shaped flaps. The tip of the lip is decurved.

Pleurothallis vaginata Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 917, 1923.

Ety.: From the Latin *vaginatus*, "sheathed," referring to the ramicaul.

Plant medium to large, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 5-20 cm long, enclosed by a loose, tubular sheath above the middle and 2-3 sheaths at the base. **Leaf** erect, coriaceous, more or less horizontal, elliptical-ovate, subacute to obtuse, slightly acuminate, the base rounded, abruptly contracted into a twisted petiole 1 cm long, the blade 5-9 cm long, 3-7 cm wide. **Inflorescence** 1-3 erect, subsecund, simultaneously few- to several-flowered racemes, 3-5 cm long, borne beneath the leaf by a slender peduncle 1-3 cm long, subtended by a spathe 0.5-1 cm long, borne from an annulus below the apex of the ramicaul; floral bracts 3 mm long; pedicels 3 mm long; ovary 3 mm long; flowers frequently cleistogamous; **sepals** yellow-green, with or without purple mottling, glabrous externally and internally, the dorsal sepal elliptical, subacute to obtuse, 6 mm long, 2 mm wide, 3-veined, barely connate to the lateral sepals, the lateral sepals connate to the apex into a concave, ovoid, obtuse synsepal, 5.5 mm long, 3 mm wide, forming a broad mentum below the column-foot; **petals** yellow, spathulate, obtuse, 3.5 mm long, 1.5 mm wide, carinate externally along the midvein; **lip** yellow, elliptical-oblong, slightly arcuate, 3 mm long, 1 mm wide, the apex narrowly obtuse, microscopically verrucose, the disc concave centrally between a pair of longitudinal calli within the margins of the slightly dilated middle third, the lower third broadly unguiculate, minutely verrucose, truncate, bilobulate, hinged to the column-foot; **column** semiterete, winged above the middle, denticulate at the apex, 3 mm long, the foot 0.5-1 mm long, the anther and the stigma ventral.

COSTA RICA: **Heredia**: La Palma near San Pedro, alt. 1125 m, 22 May 1923 (published Nov. 1921), *A.M. Brenes 122* (holotype of *P. vaginata* destroyed at B; lectotype: AMES).
PANAMA: **Chiriquí**: above Camp Escopeta, Cerro Colorado, alt. 1700 m, 16 Feb. 1977, *C. Luer, J. Luer & R.L. Dressler 1446, 1447* (SEL); Cerro Colorado, alt. 1750 m, 15 Feb. 1985, *C. Luer, J. Luer, R. & K. Dressler 10553* (MO). **Coclé**: Loma del Tigre north of El Valle de Antón, alt. 1000 m, 16 Nov. 1946, *P.H. Allen 3808* (K, MO).

This species is closely allied to the frequent *P. imraei*, and could possibly be treated as a small variation. It differs from *P. imraei* in the smaller habit with totally glabrous flowers only half as large that are frequently cleistogamous.

Pleurothallis villosa Knowles & Westc., Floral Cabinet 2: 78, 1838.

Ety.: From the Latin *villosus*, "with long, weak hairs," referring to the sepals.

Syn.: *Pleurothallis schiedei* Rchb.f., Linnaea 22: 826, 1849.
Ety.: Named in honor of the collector, Herr Schiede.

Syn.: *Humboldtia schiedei* (Rchb.f.) Kuntze, Rev. Gen. Pl. 2: 668. 1891.

Syn.: *Humboldtia villosa* (Knowles & Westc.) Kuntze, Rev. Gen. Pl. 2: 668. 1891.

Syn.: *Pleurothallis hirsuta* Ames, Orchid. 2: 270, 1908.
Ety.: From the Latin *hirsutus*, "with long hairs," referring to the sepals.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 2-7 cm long, slightly compressed above, enclosed by a tubular sheath below the middle, with 2-3 shorter sheaths above the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, 3-5.5 cm long, 1-2 cm wide, cuneate below into the sessile base. **Inflorescence** a lax, distichous, subflexuous, successively few-flowered raceme with 1-2 flowers open simultaneously, 5-9 cm long including the peduncle 2-3 cm long, subtended by a spathe 3 mm long, from the apex of the ramicaul at the base of the leaf; floral bracts tubular, 2-3 mm long; pedicels slender, 4-7 mm long; ovary spotted with purple, 2 mm long; **sepals** fleshy, yellow-green, spotted with purple, carinate externally, purple-villous within, the dorsal sepal elliptical-obovate, subacute, concave, 7 mm long, 2.5-3 mm wide, 3-veined, free from the laterals at the base, the lateral sepals connate into an obovate, shortly bifid synsepal, 5 mm long, 4 mm wide unexpanded, 6-veined, the apices obtuse, in apposition; **petals** translucent yellow-green, spotted with purple, obovate-spathulate, rounded at the apex, 2.5-3 mm long, 1.25 mm wide, with minute purple verrucae externally; **lip** green, marked with purple, oblong-unguiculate, arcuate, 3.5 mm long, 1 mm wide, the apex rounded, sides erect along the middle third with a low carina within the margin, obtusely angled above the claw, the disc shallowly concave between the calli, the claw slender, 1 mm long, with a minute pair of converging carinae near the middle, base hinged to the tip of the column-foot; **column** green, narrowly winged and serrulate above the middle, denticulate at the apex, 2.5 mm long, the foot 1 mm long, the anther and stigma ventral.

MEXICO: without collection data, cultivated by G. Barker, Esq., presumably of London, ca. 1837, no holotype extant. Without locality, collected 1905, specimen pressed from cultivated material, 3 Aug. 1907, *C.G. Pringle s.n. ("type-plant" of* P. hirsuta, *neotype of* P. villosa *here designated: Ames 10552*); Without locality, specimen pressed from cultivated material, 11 July 1907, *C.G. Pringle s.n. (syntype of* P. hirsuta, *lectotype of* P. hirsuta *here designated: Ames 10158*); pressed from cultivated material 16 May 1906, *G.C. Pringle s.n.* (syntype of *P. hirsuta*: Ames 8095). Without collection data, collected by Schiede, cultivated at the Hamburg Botanical Garden, *Schiede s.n.* (holotype of *P. schiedei*: W); **Michoacán**: Temascaltepec, Communidad, alt. 2610 m, 7 July 1932, *G.B. Hinton 969* (K, MO); Vicinity of Morelia, alt. 2000 m, Dec. 1910, *Bro. G Arséne 5146* (MO); vicinity of Morelia, Charro Prieto, alt. ca. 1900 m, 30 July 1937, *O. Nagel & E. Vera 6884* (AMES); region of Morelia, alt. 2000 m, 27 Aug. 1938, *E. Vera 6884* (MO); Temascaltepec, Cajones, alt. 2440 m, 8 Sept. 1933, *G.B. Hinton 4642* (K, MO, SEL); Temascaltepec, Mar Mina del Rincon, alt. ca. 1900 m, 24 Feb. 1936, *E. Oestlund 5400* (AMES); north of Temascaltepec, 20 Aug. 1959, *R.L. Dressler 2547* (MO); Temascaltepec, collected by R. McCullough 1777, cultivated 3 June 1975, *C. Luer 1650A* (SEL). **Morelia**: Barranca del Chilar, alt. 1800 m, 15 Sept. 1937, *E. Vira 7041* (BM, MO). **Jalisco**: Tecalitlán, southeast of Llanitos, alt. 2050 m, 19 July 1988, *A. S. Garza G. 389* (CHAPA, K).
GUATEMALA: **Alta Verapaz**: Samác near Cobán, 1878, *H. von Türckheim 161* (AMES, W); between Purulhá and Cobán, alt. 1500 m, 16 July 1977, *T.B. Croat 41229* (MO); near Cobán, collected by H. Morgan, cult. 3 July 1977, *C. Luer 1650* (SEL). **Huehuetenango**: Cerro Huitz, between Mineanhuiz and Yulhuitz, alt. 1500-2600 m, 14 July 1942, *J.A. Steyermark 48615* (K).
HONDURAS: **Coamayagua**: El Achote, above plains of Siguatepeque, alt. 1350 m, 30 July 1936, *T. G. Yuncker et al. 6215* (AMES, K, MO).
EL SALVADOR: **Morazán**: Perquín-Sabenetas, alt. 1850 m, 15 Oct. 1971, *P. Hamer 59* (MO).
COSTA RICA: **Cartago**: Candelaria, between Capalobi and Alumbe, ca. 1867, *A. Endres 54* (ill. at W).

For over a century and a half, the identity of this species had not been clear. In 1838, Knowles and Westcott published a concise description which applies to no other Mexican species. In summary: a plant four inches high, a scape flexuous at each bend bearing a flower, flowers very woolly and spotted with purple, and lateral sepals connate and gibbous at the base. No specimen was preserved. Although the length of the raceme was not given, the impression that it was longer than the leaf was implied. "Each bend bearing a flower" would hardly be noticed in a short, congested raceme as in *Trichosalpinx ciliaris*. The very woolly and purple-spotted flowers seem conclusive. In 1859, Lindley identified the description with Reichenbach's *Pleurothallis lepanthiformis* and his own *Specklinia ciliaris*.

In 1859, Reichenbach described *P. schiedei*. His description and detailed illustration depict exactly this same species, as do Ames' description and illustration of *P. hirsuta* in 1908 exactly define this species.

In 1882, Reichenbach described *P. ornata*, a species similar in many respects, but immediately identified by the short ramicauls and the unmistakable, conspicuous, unique, clavate appendages on the margins of the sepals. Ignoring *P. villosa* and believing *P. schiedei* the same species as *P. ornata*, Ames described *P. hirsuta*.

BINOMIALS IN SUBGENUS *EFFUSIA* ENDEMIC IN BRAZIL

P. arcuata Lindl.
P. avenacea Ames
P. bertoniensis Hauman
P. cuneifolia Lindl. = **P. hypnicola**
P. elachopus Rchb.f. = **P. hypnicola**
P. ephemera Lindl.
P. filiformis Cogn.
P. ferdinandiana (Barb.Rodr.) Cogn.
P. flaccida Klinge
P. ghillanyi Pabst
P. gomes-ferreiraei Pabst
P. granulosa Cogn.
P. hians Lindl.
P. hygrophila Barb.Rodr.
P. hypnicola Lindl.
P. laxiflora Porsch
P. longirostris Focke = **P. ephemera**
P. microtis Schltr.
P. ornithorrhyncha Hoehne = **P. ephemera**
P. pellifeloides (Barb.Rodr.) Cogn.
P. piraquarensis Hoehne
P. rostriflora Rchb.f.
P. sarcopetala (Barb.Rodr.) Cogn.
P. sparsiflora Schltr. = **P. cuneifolia**
P. susanensis Hoehne
P. tabacina (Barb.Rodr.) Cogn.
P. tricolor (Barb.Rodr.) Cogn.
P. trimeropetala Pabst

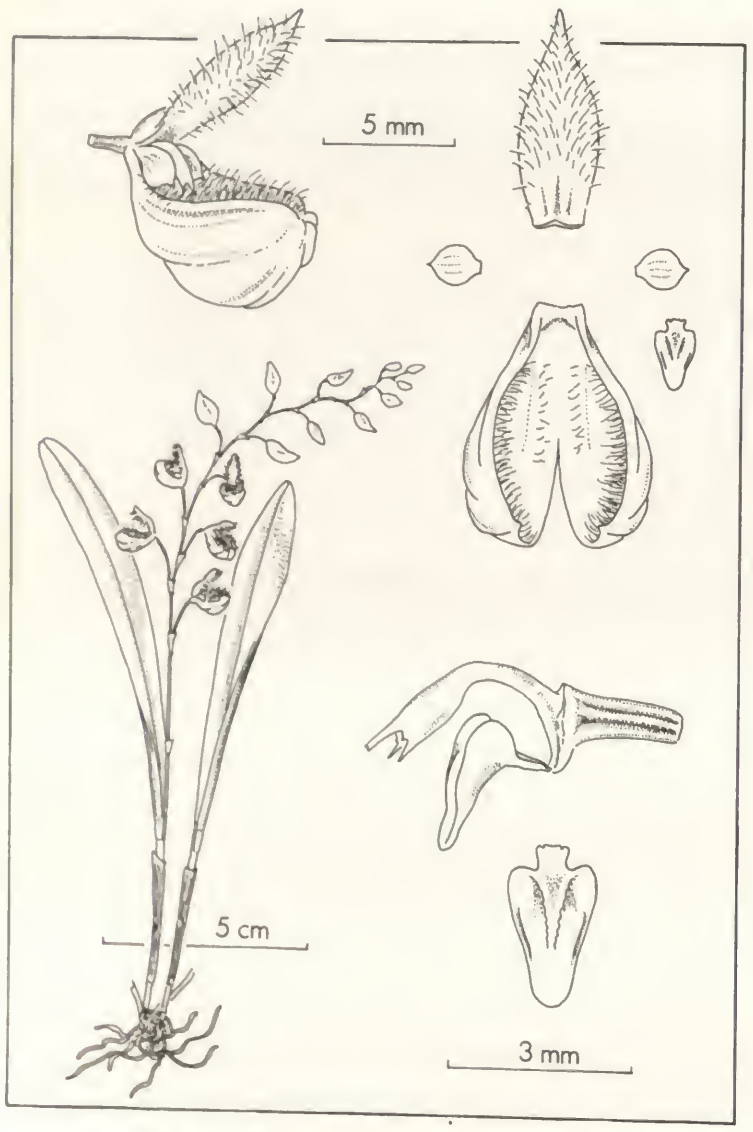


Fig. 1. Pleurothallis amparoana

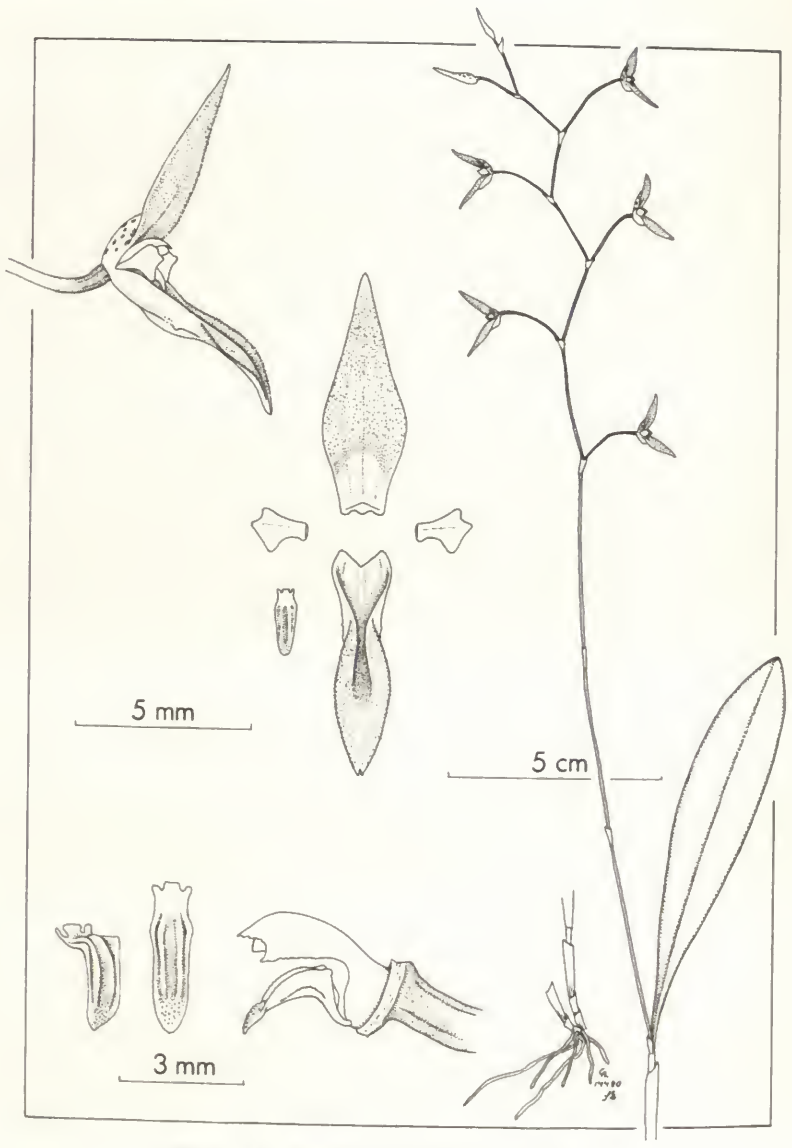


Fig. 2. Pleurothallis arcuata

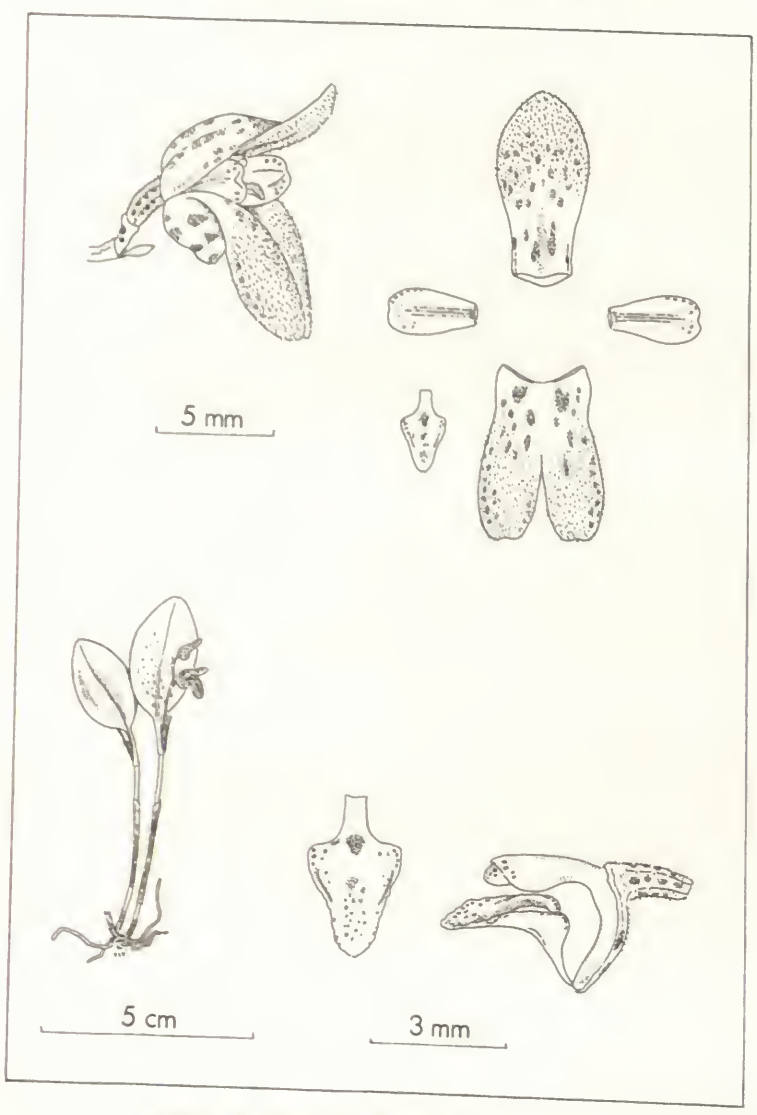


Fig. 3. Pleurothallis brenneri

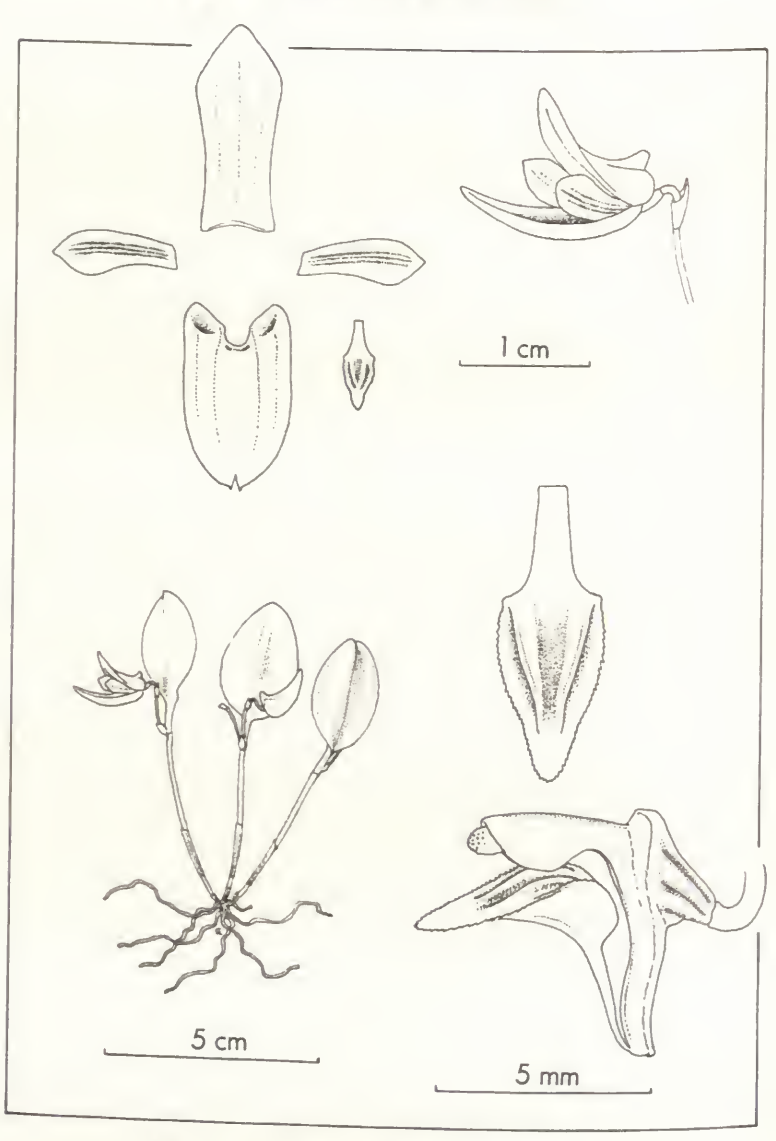


Fig. 4. Pleurothallis chlorina

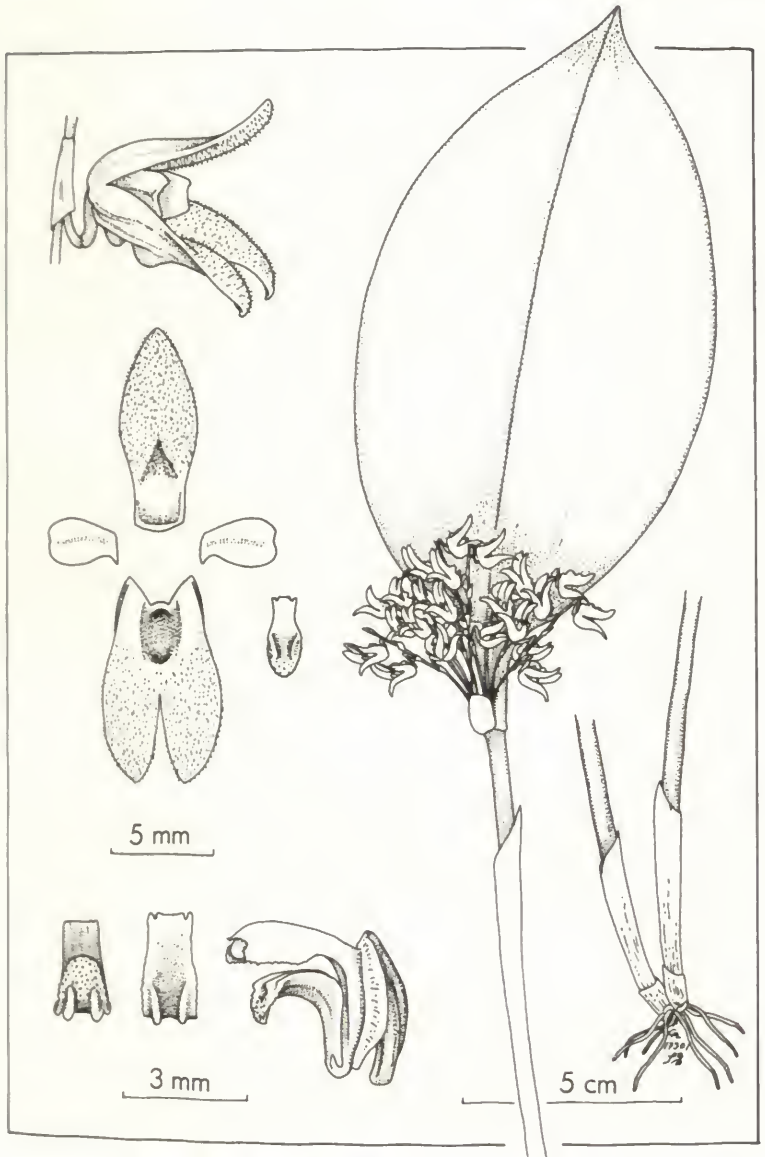


Fig. 5. Pleurothallis cocornaënsis

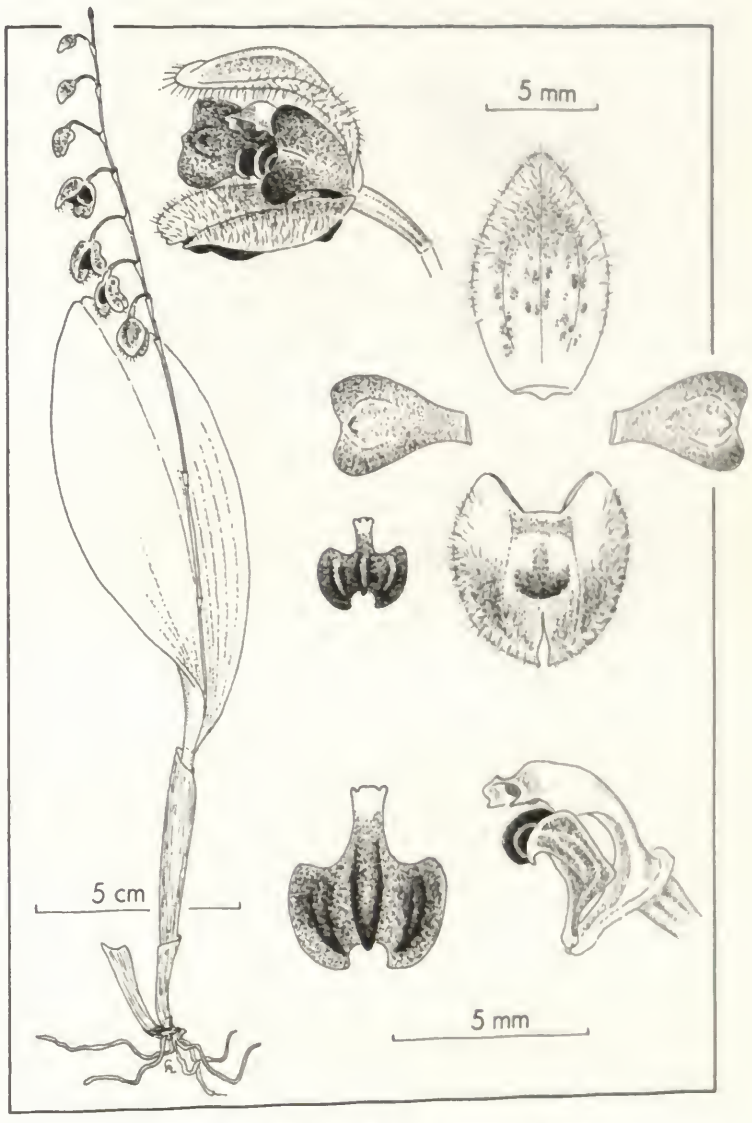


Fig. 6. Pleurothallis convallaria

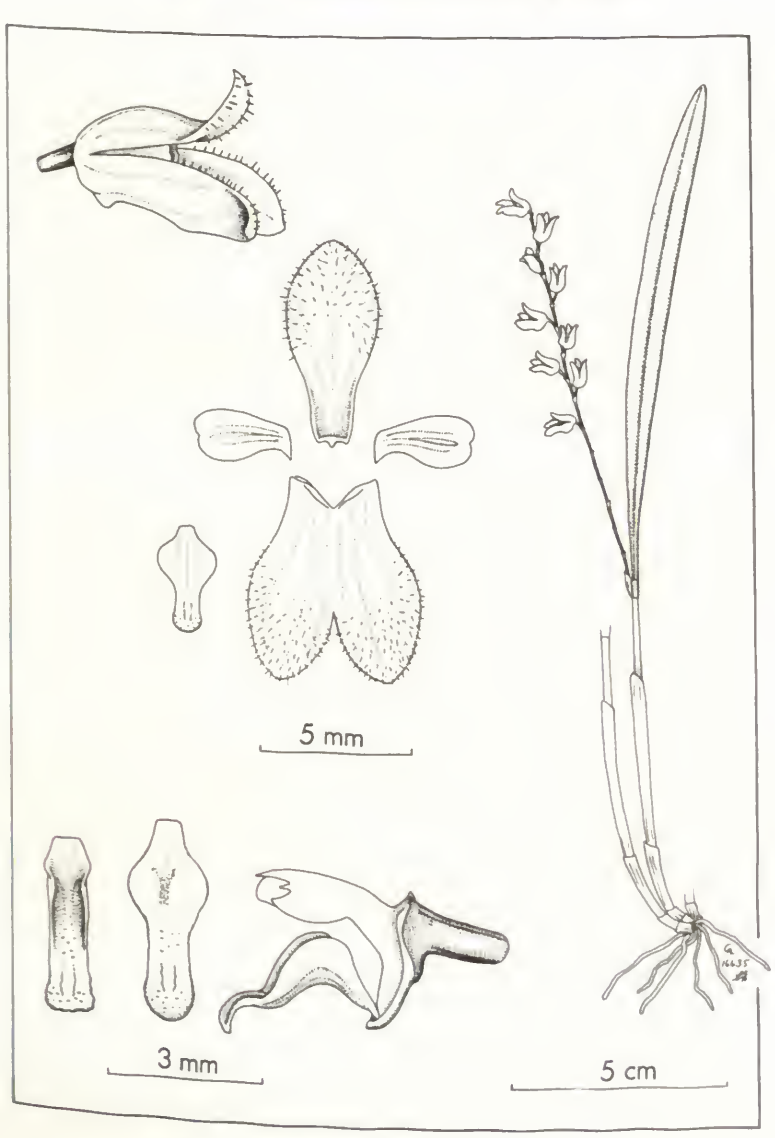


Fig. 7. Pleurothallis convoluta

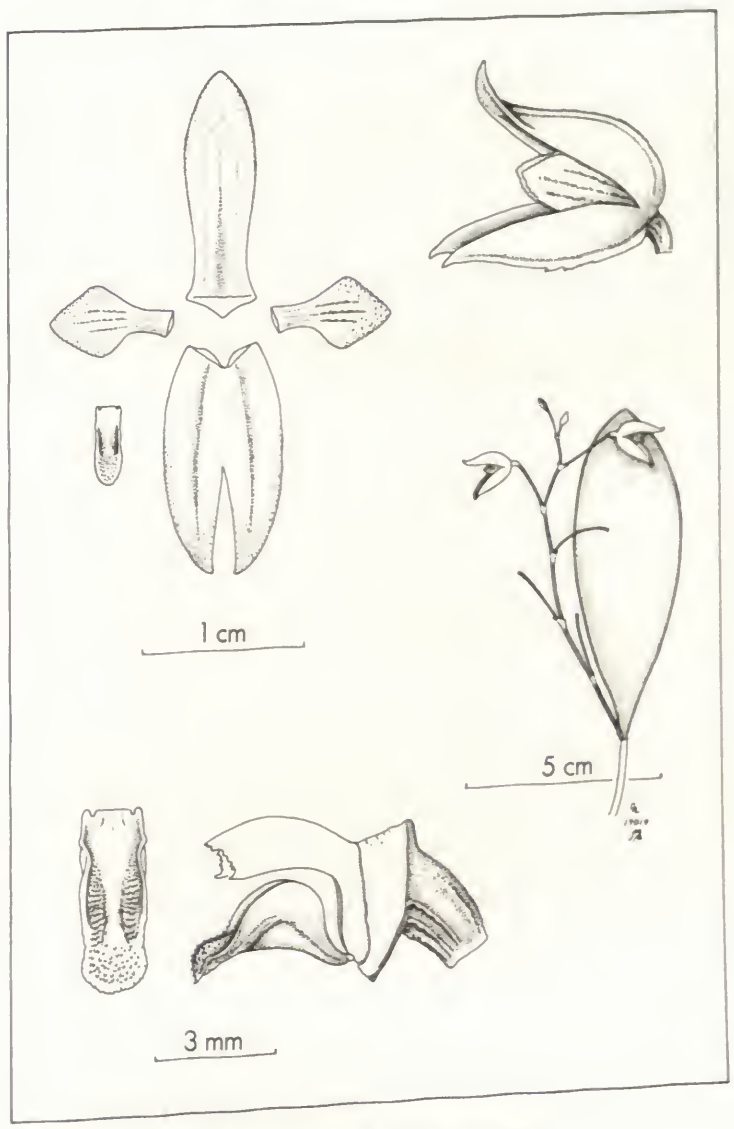


Fig. 8. Pleurothallis crenata

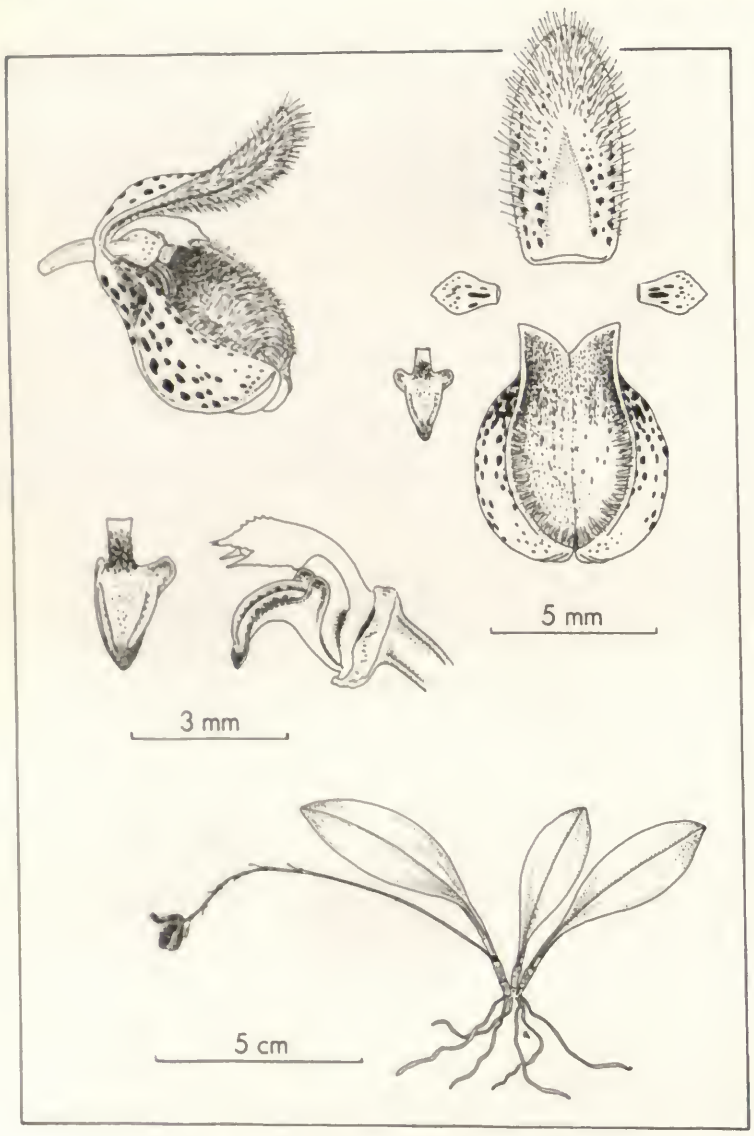


Fig. 9. Pleurothallis cypripedioides

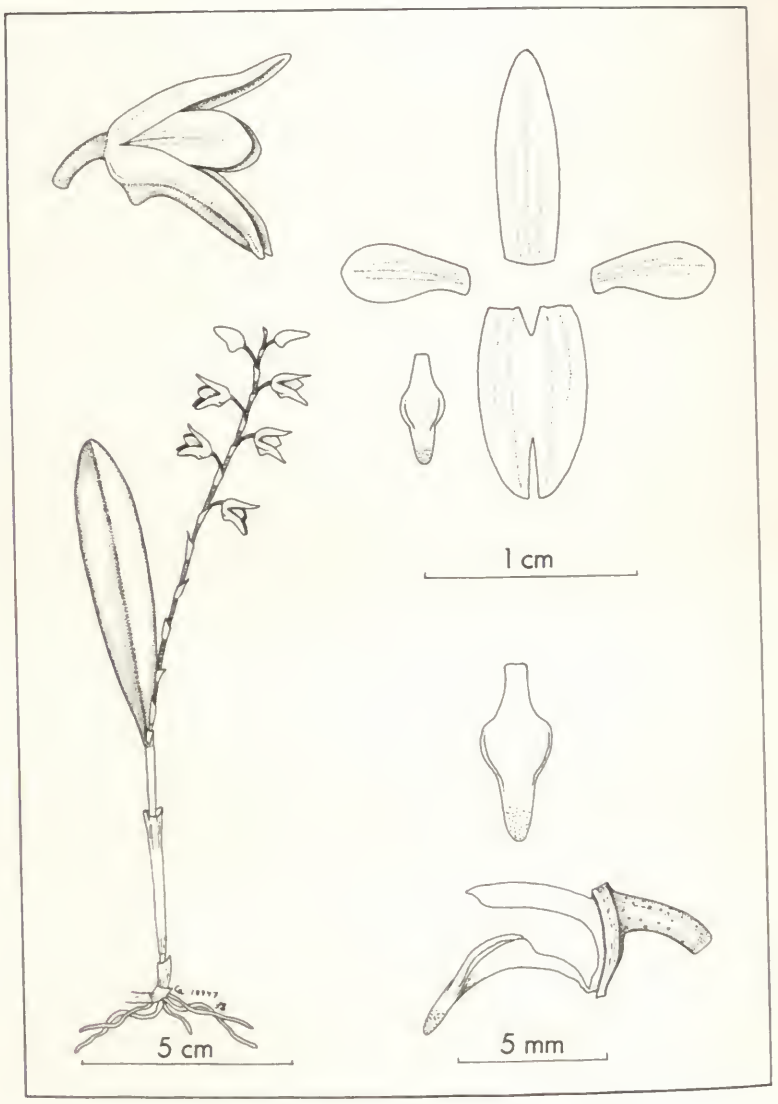


Fig. 10. Pleurothallis dilatata

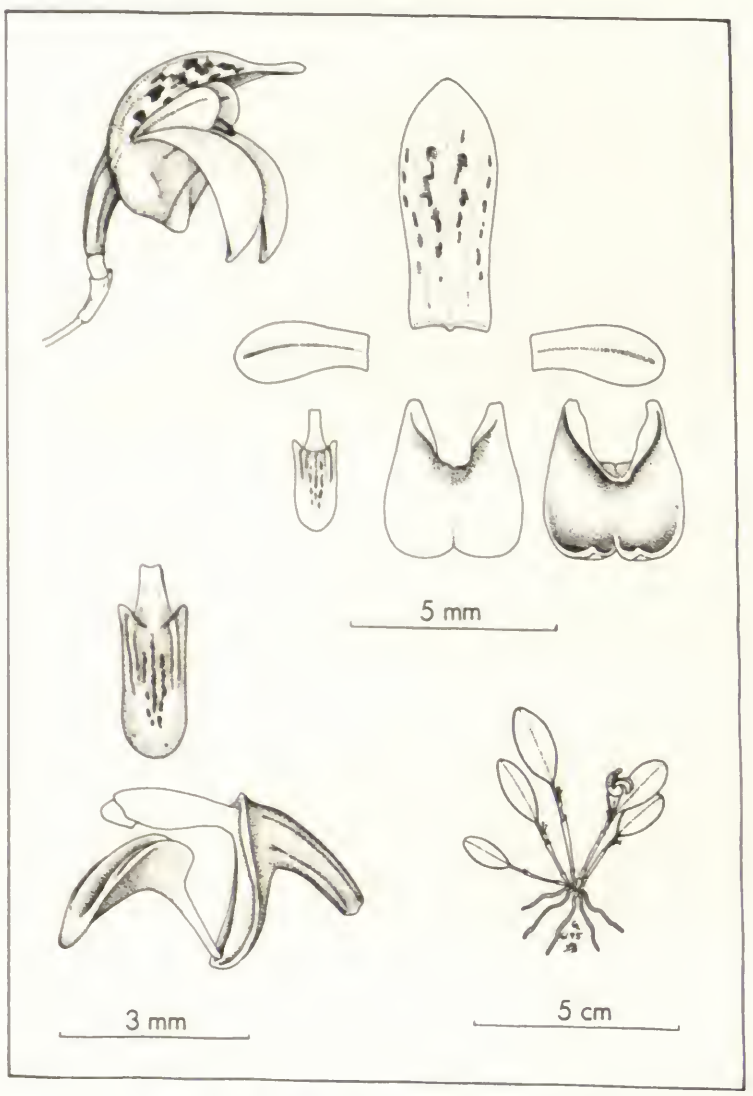


Fig. 11. Pleurothallis diminuta

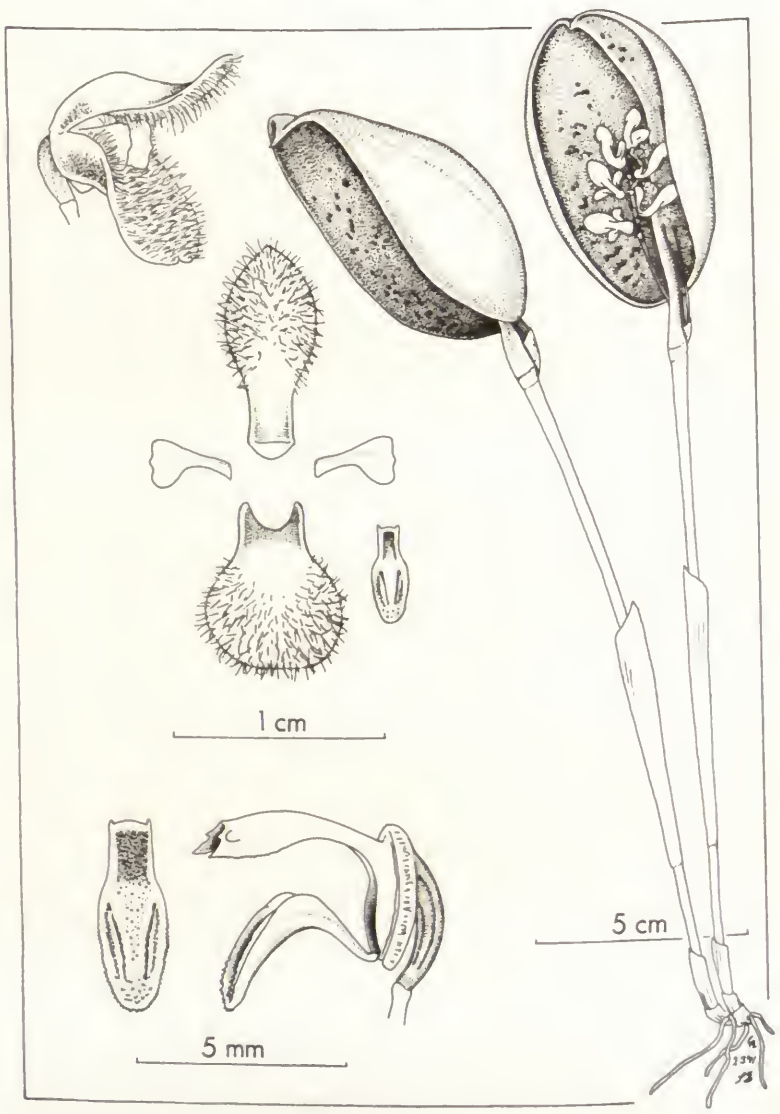


Fig. 12. Pleurothallis erucosa

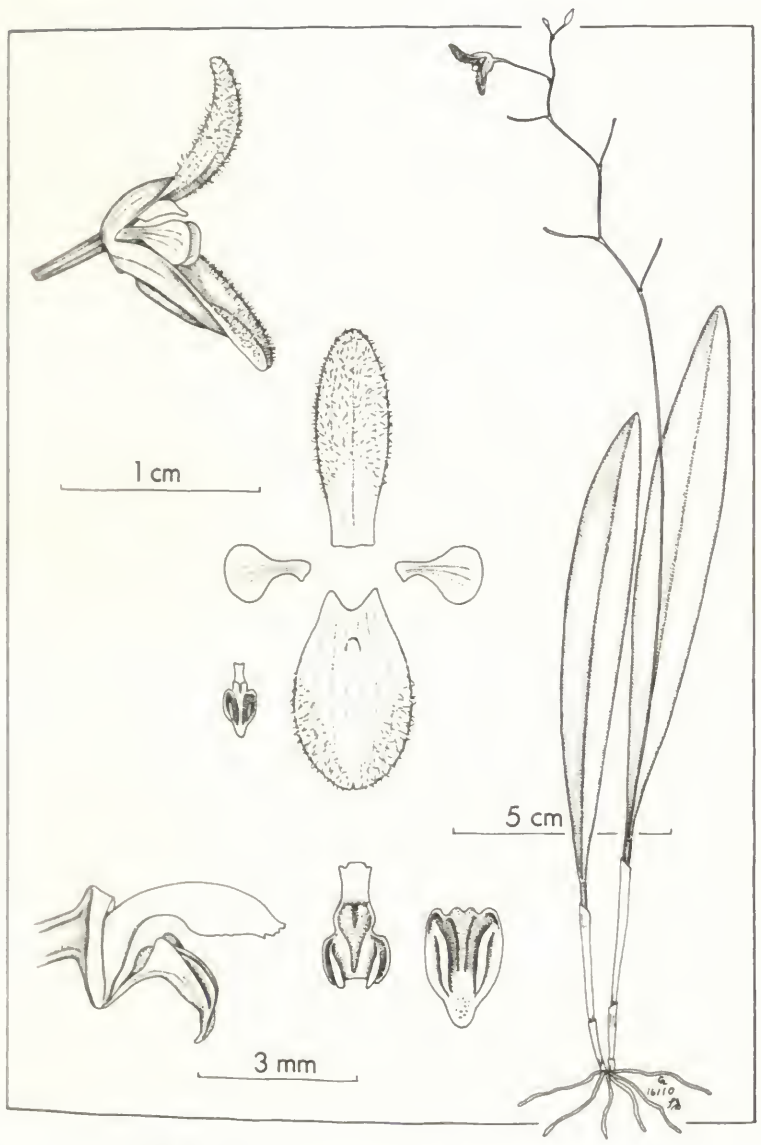


Fig. 13. Pleurothallis flexuosa

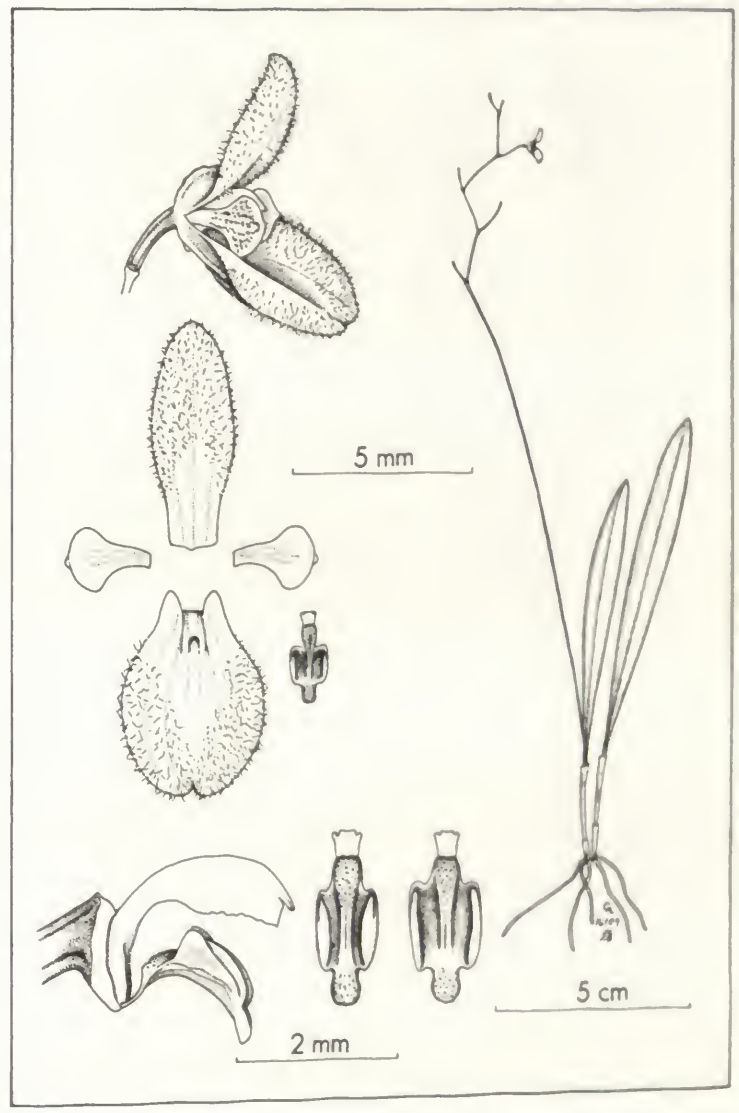


Fig. 14. Pleurothallis flexuosa

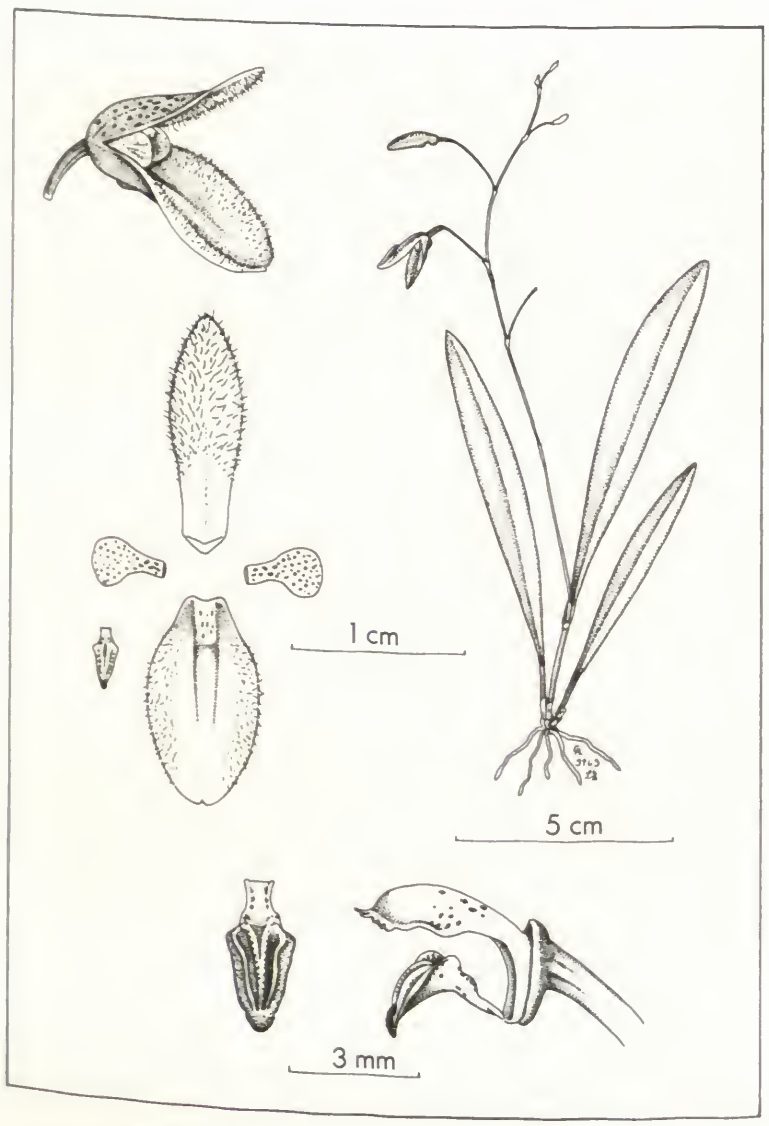


Fig. 15. Pleurothallis flexuosa

Fig. 16. Pleurothallis fornicata

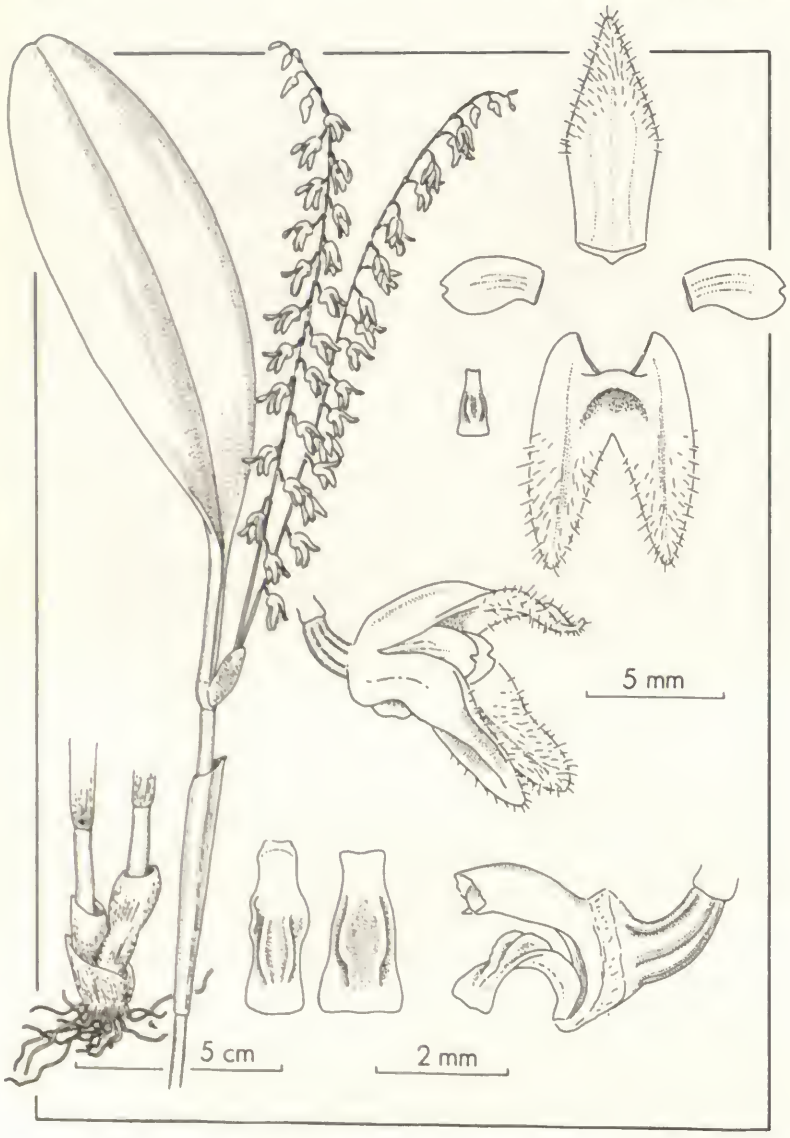


Fig. 17. Pleurothallis gelida

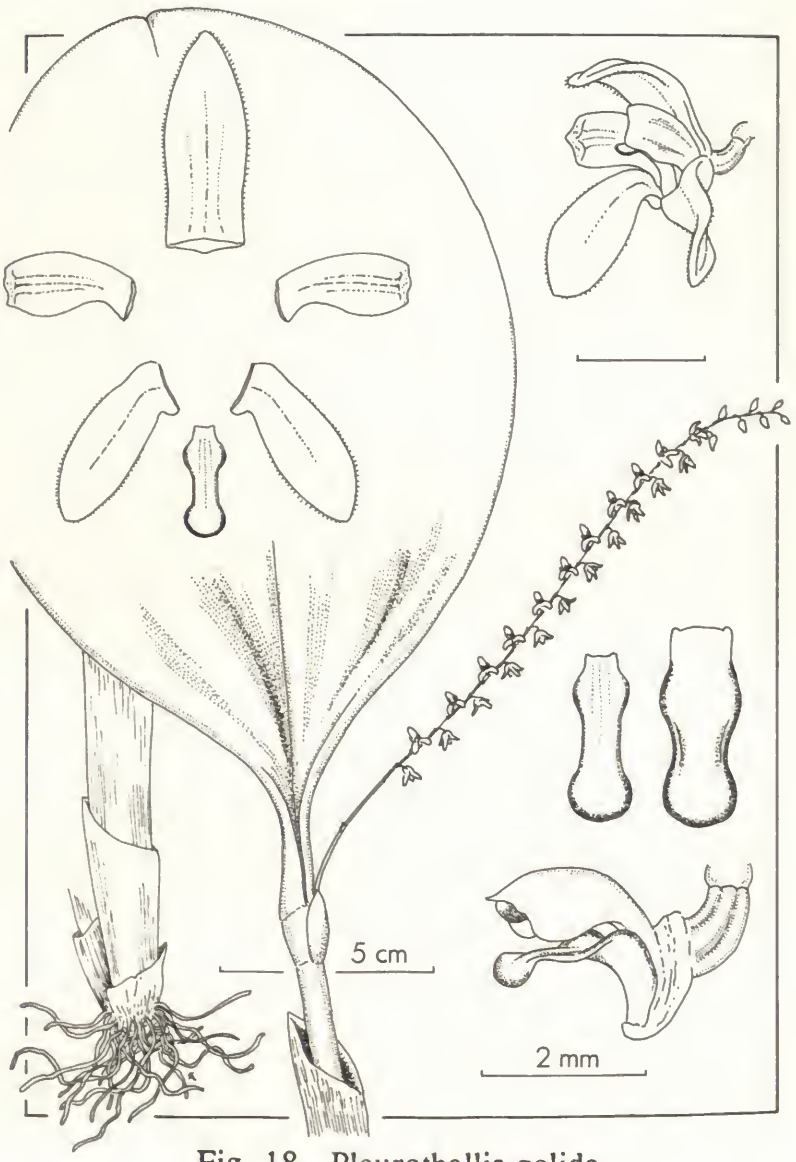


Fig. 18. Pleurothallis gelida

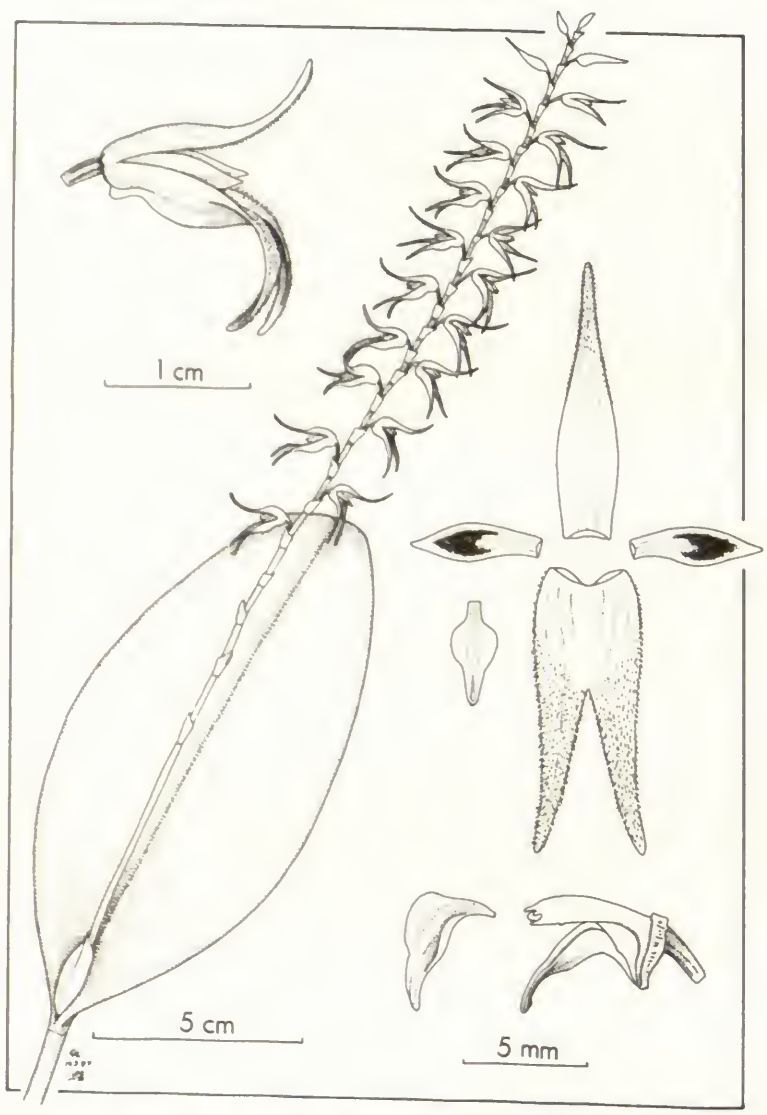


Fig. 19. Pleurothallis hamiltonii

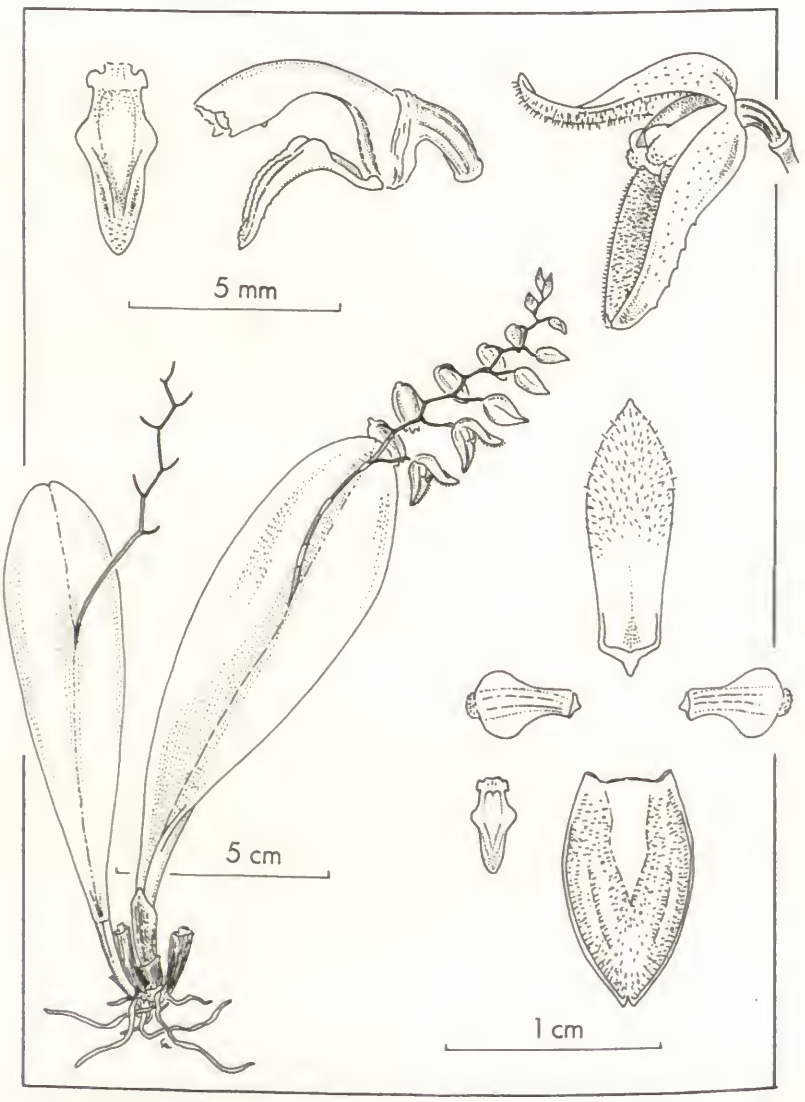


Fig. 20. Pleurothallis immersa

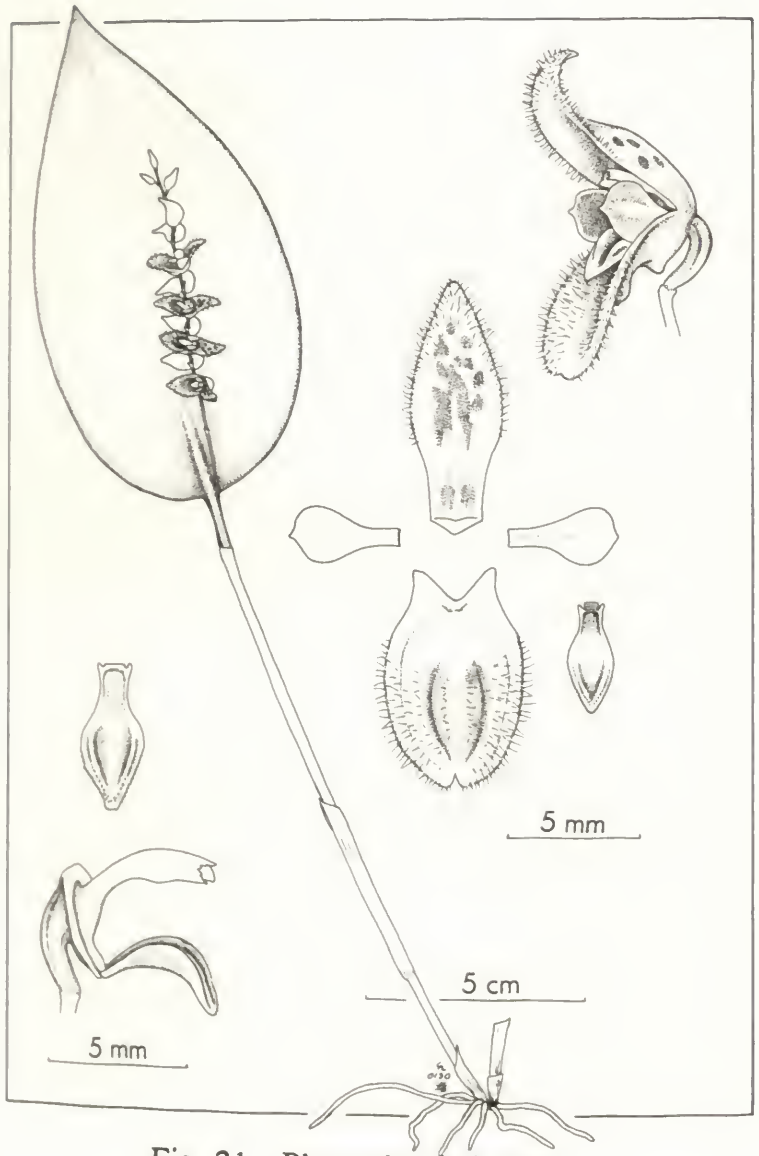


Fig. 21. Pleurothallis imraei

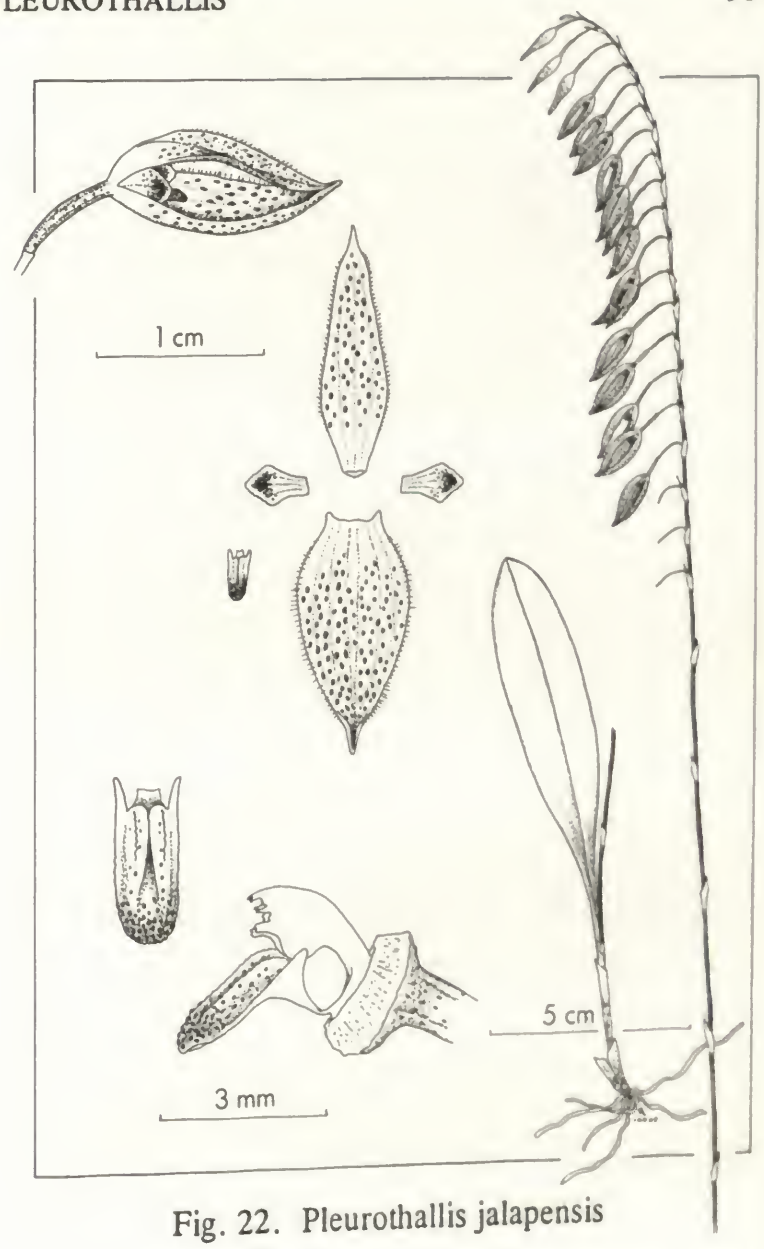


Fig. 22. Pleurothallis jalapensis

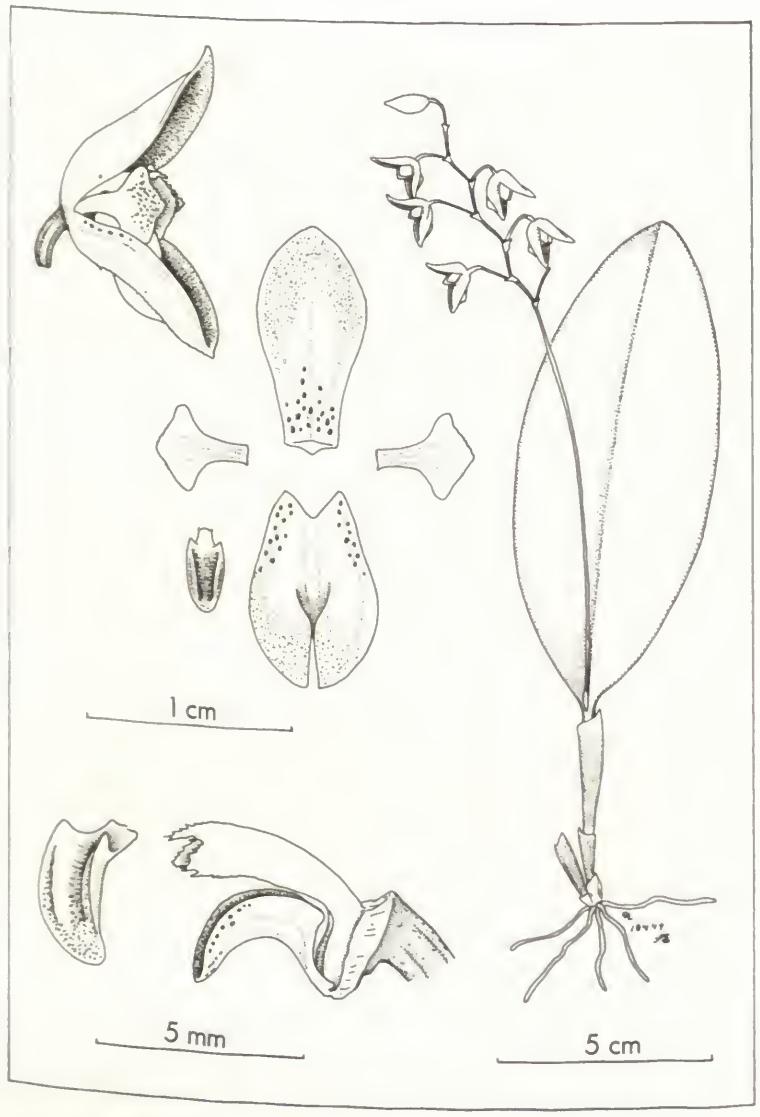


Fig. 23. Pleurothallis lehmanneptis

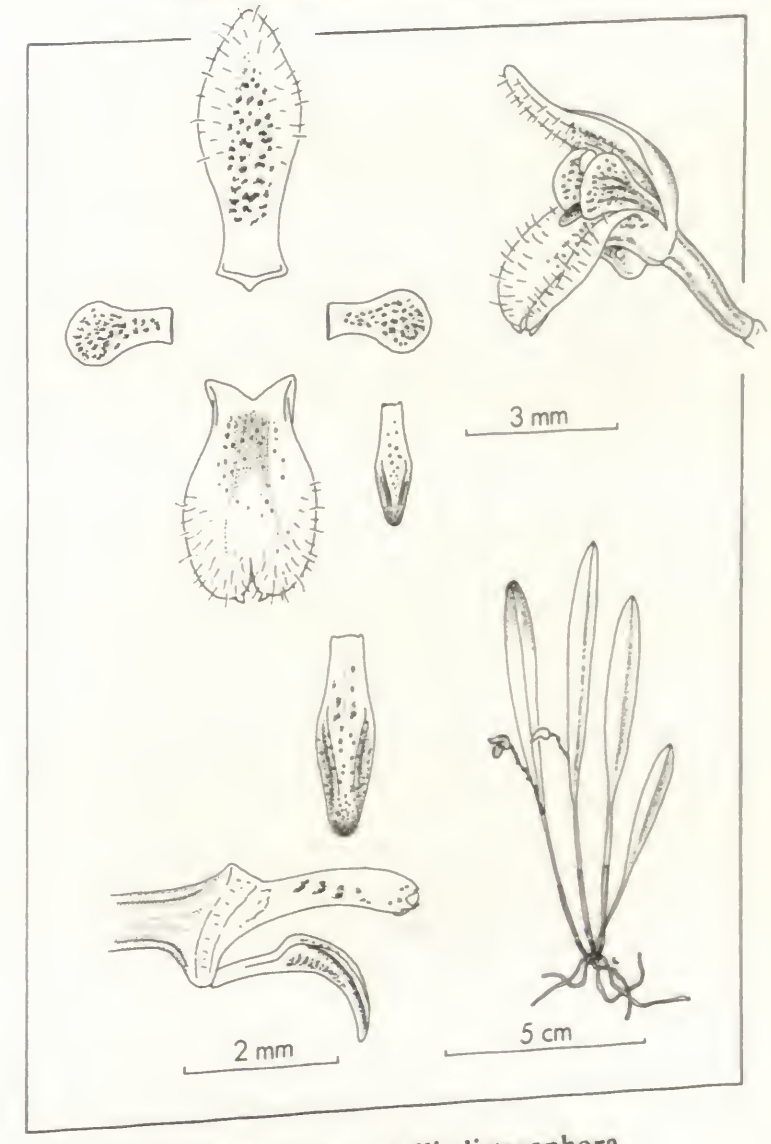


Fig. 24. Pleurothallis listerophora

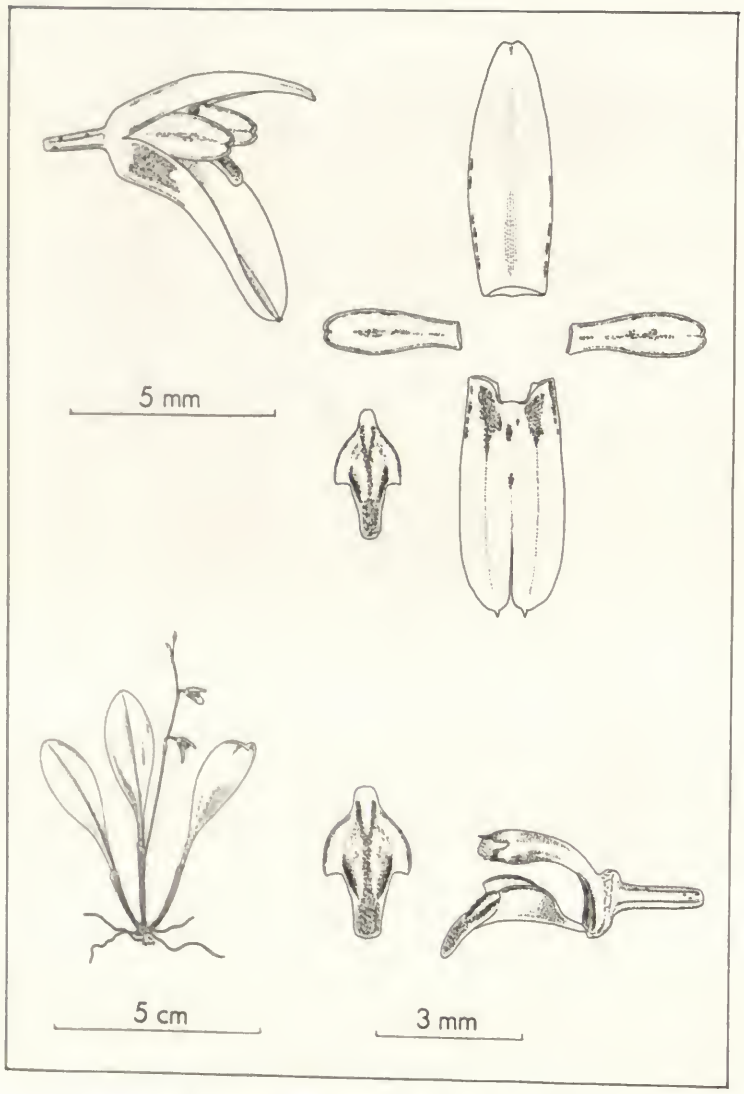


Fig. 25. Pleurothallis longispicata

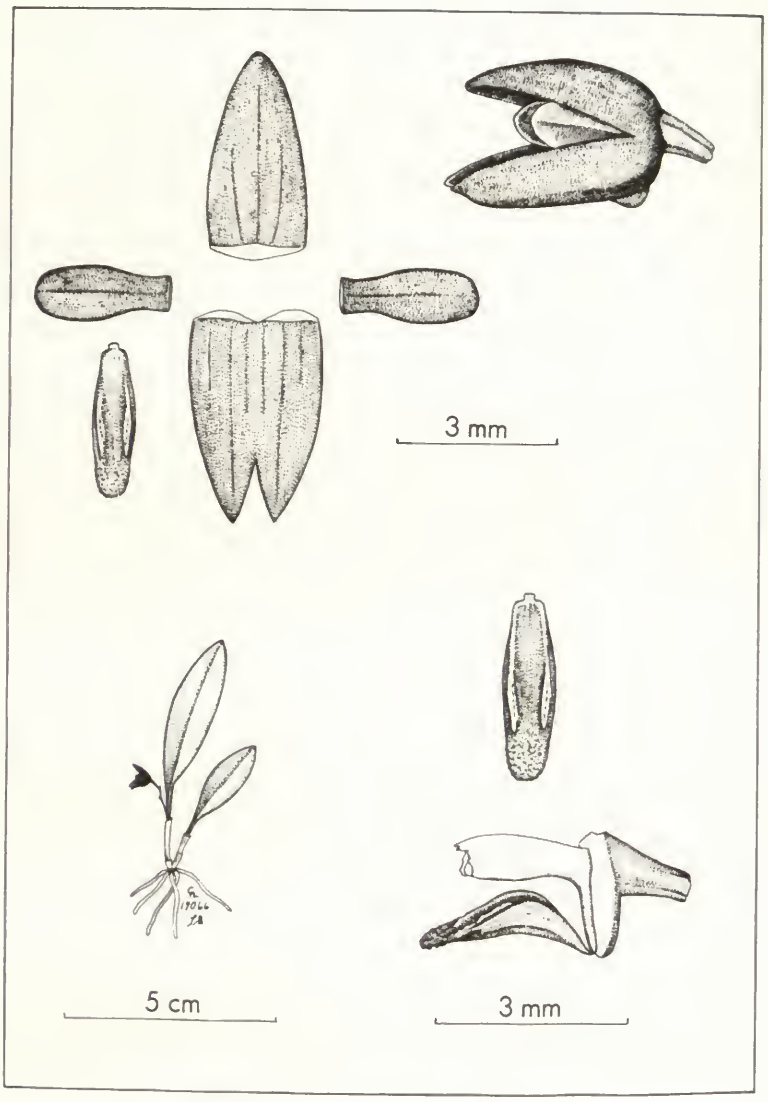


Fig. 26. Pleurothallis nigriflora

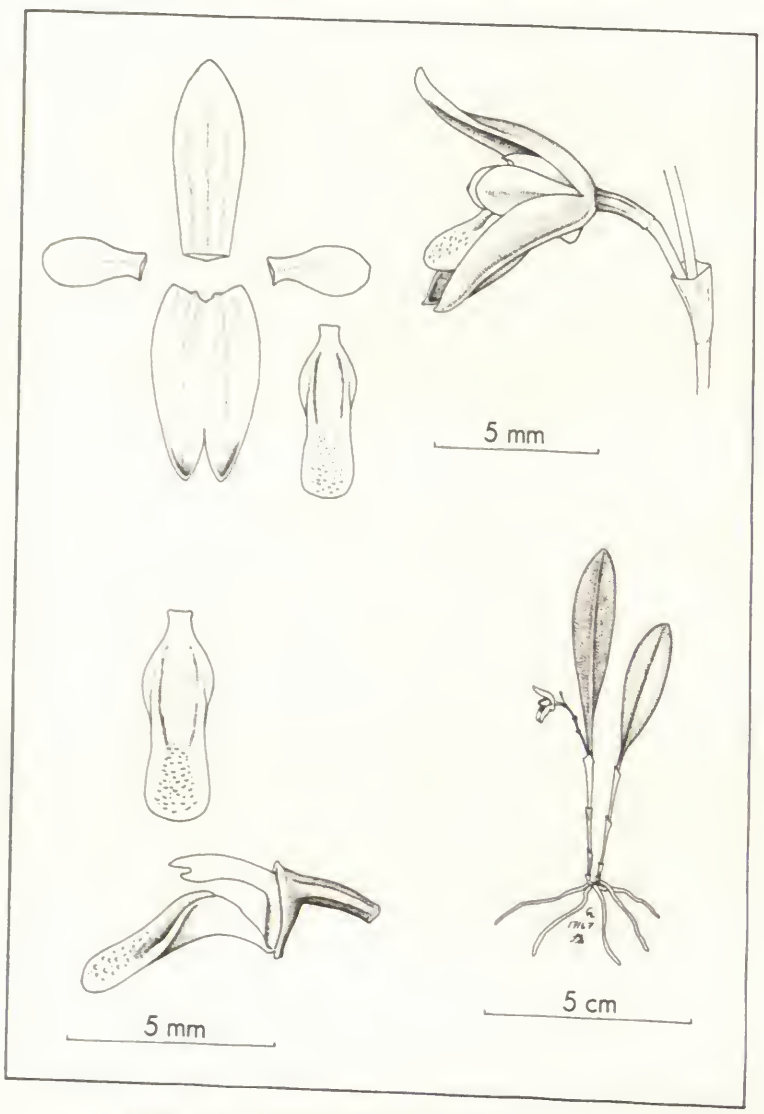


Fig. 27. Pleurothallis oestlundiana

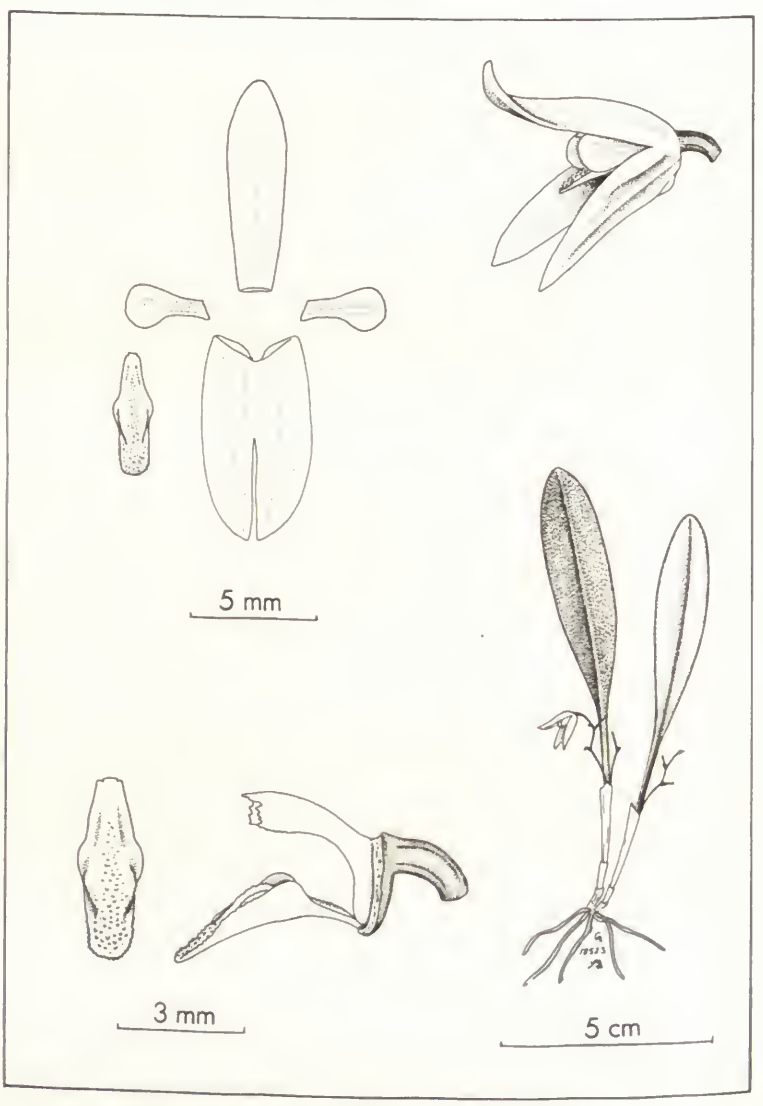


Fig. 28. Pleurothallis oestlundiana
(Pleurothallis sanguinolenta)

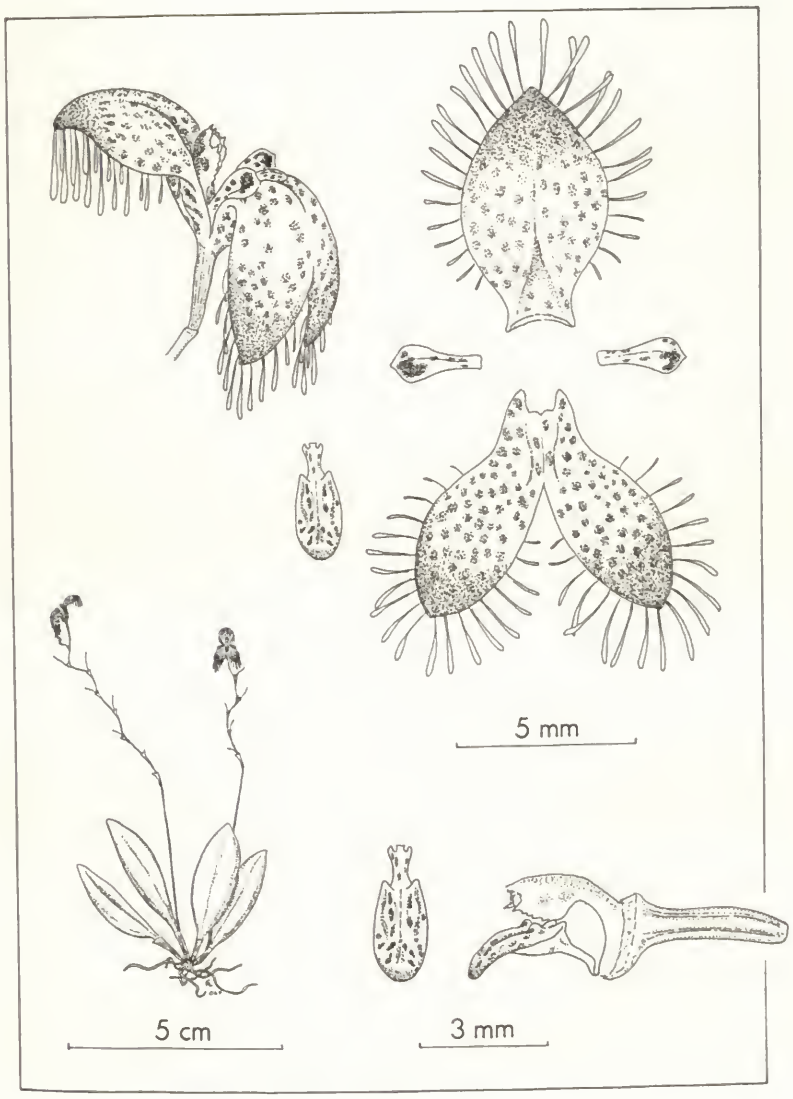


Fig. 29. Pleurothallis ornata

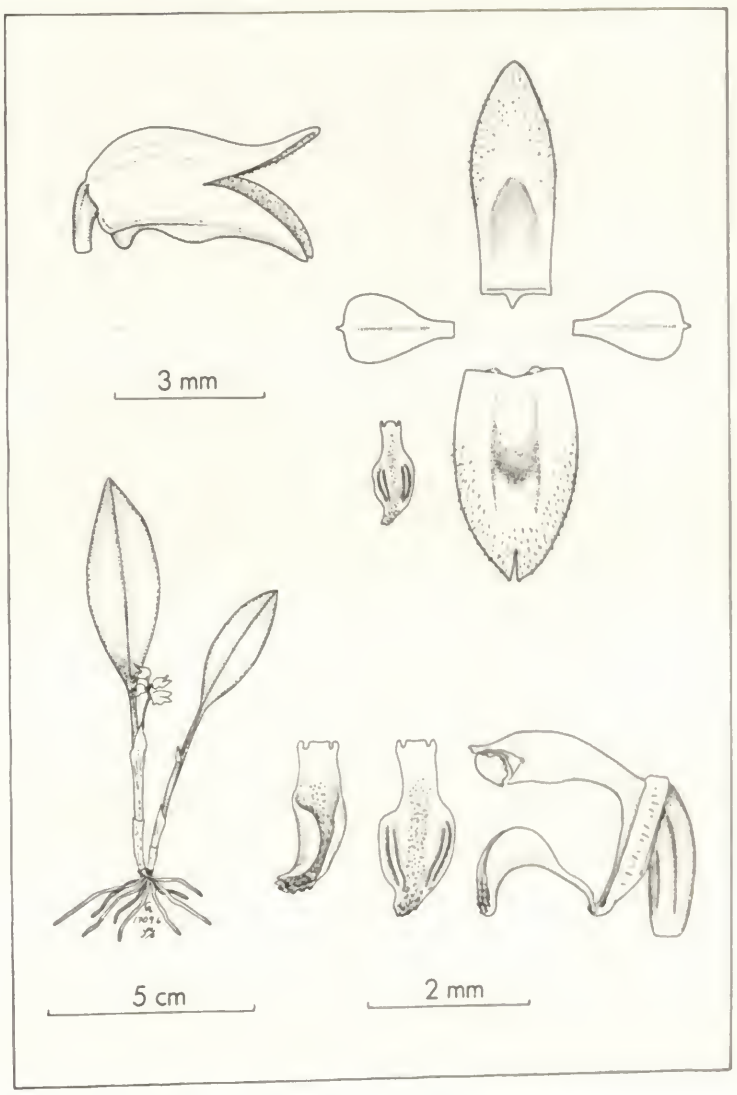


Fig. 30. Pleurothallis petiolaris

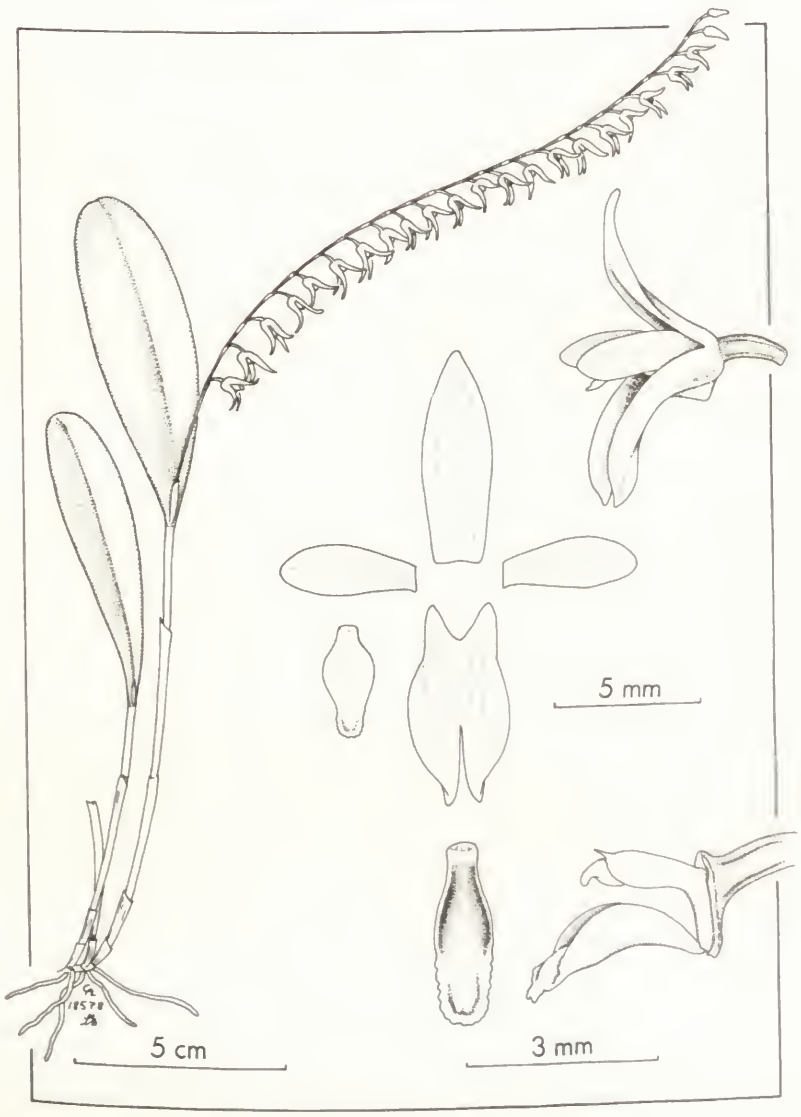
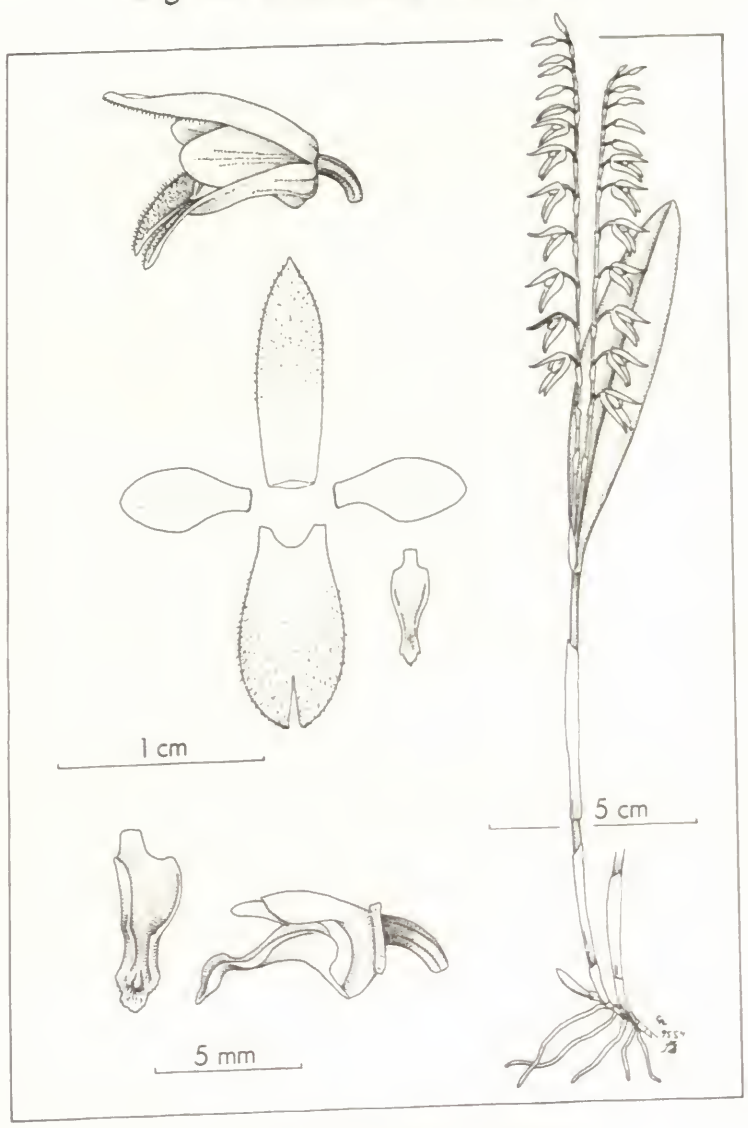


Fig. 31. Pleurothallis platystylis



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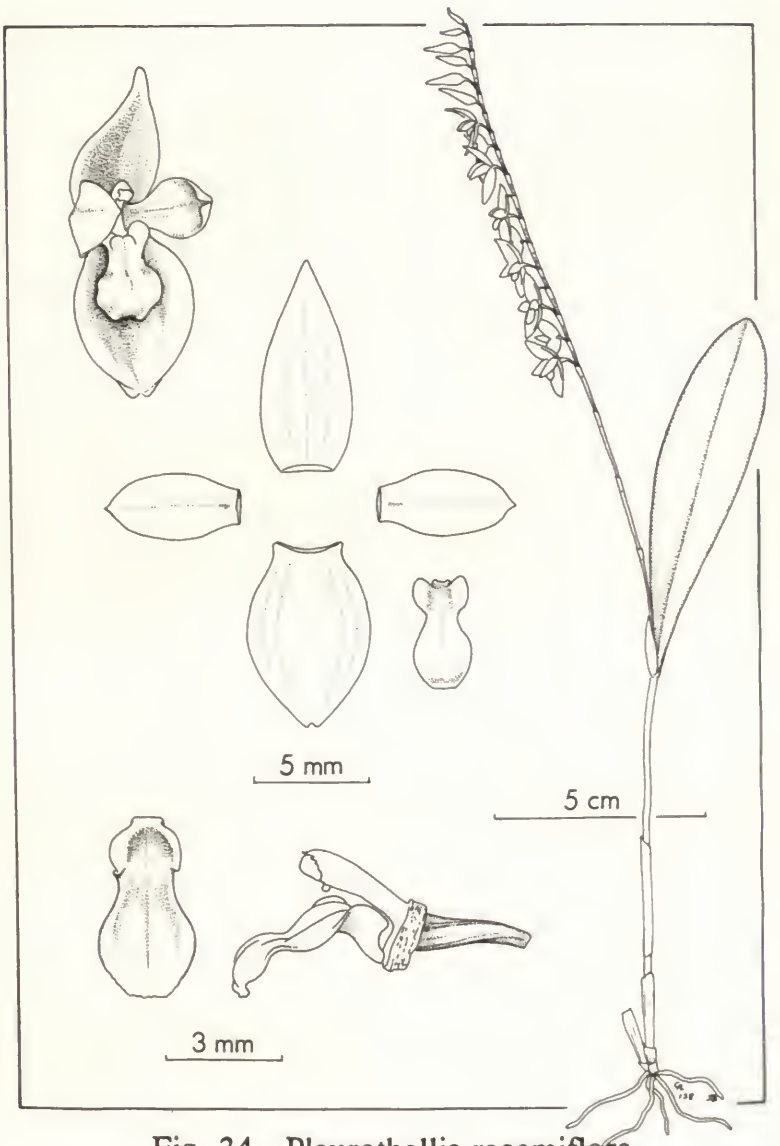

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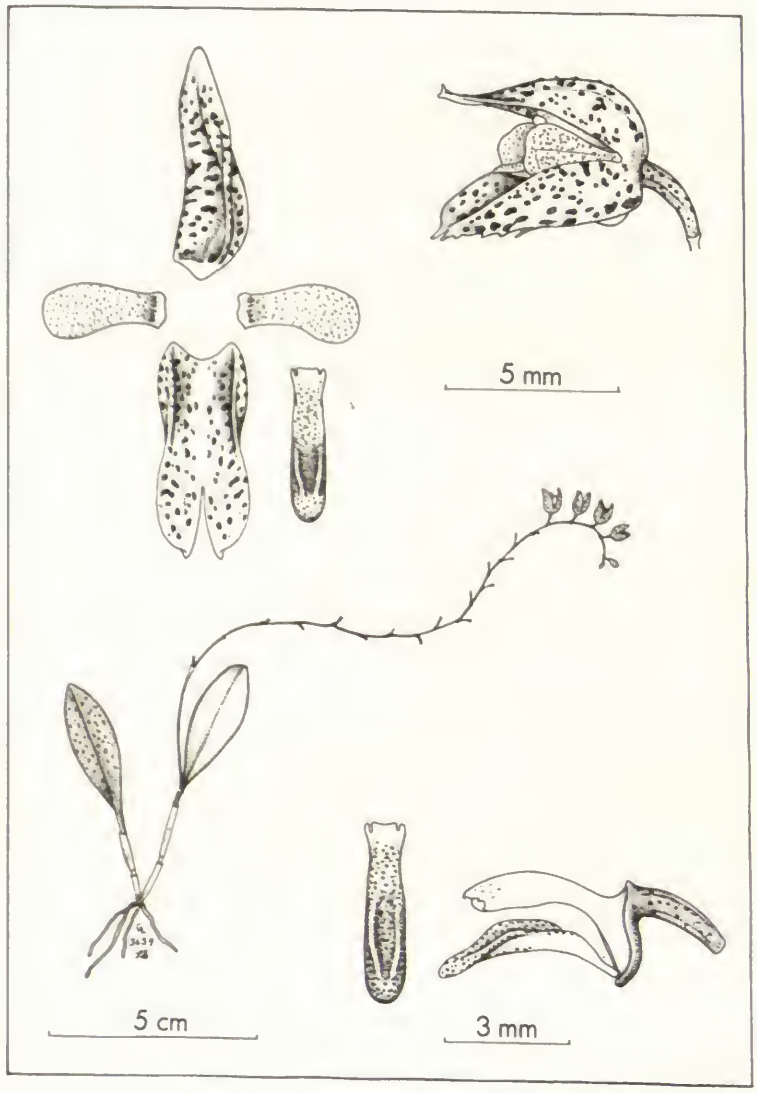

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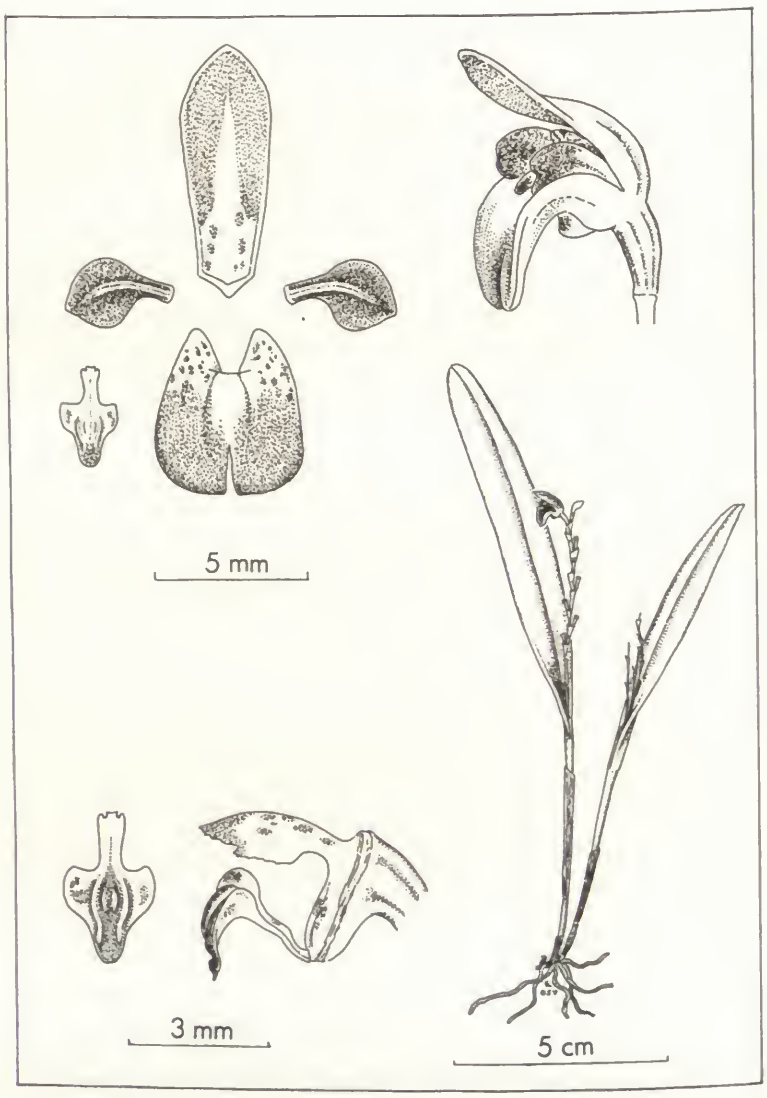
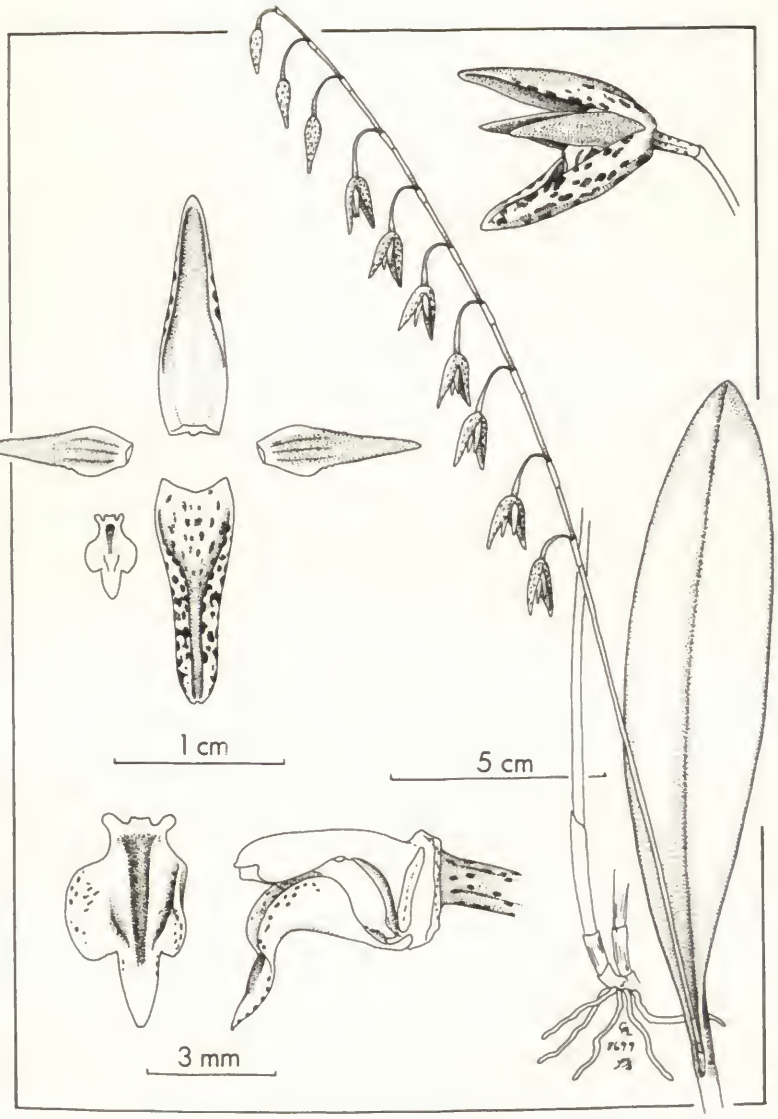


Fig. 36. Pleurothallis retusa



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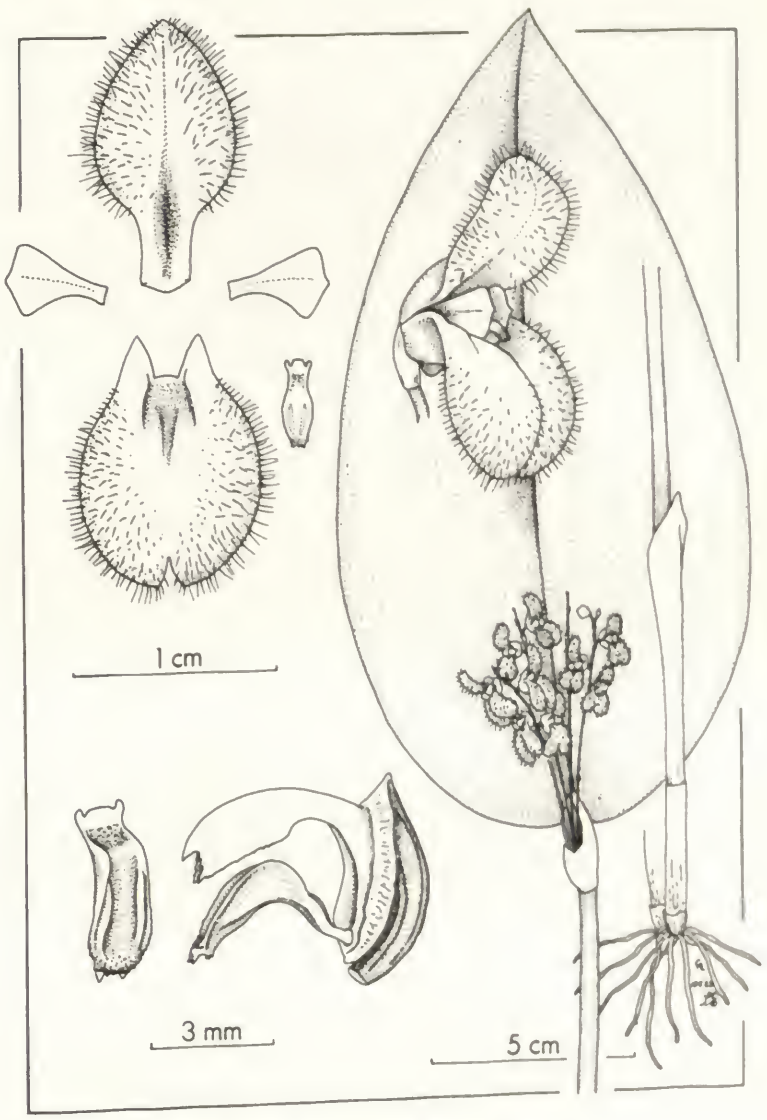

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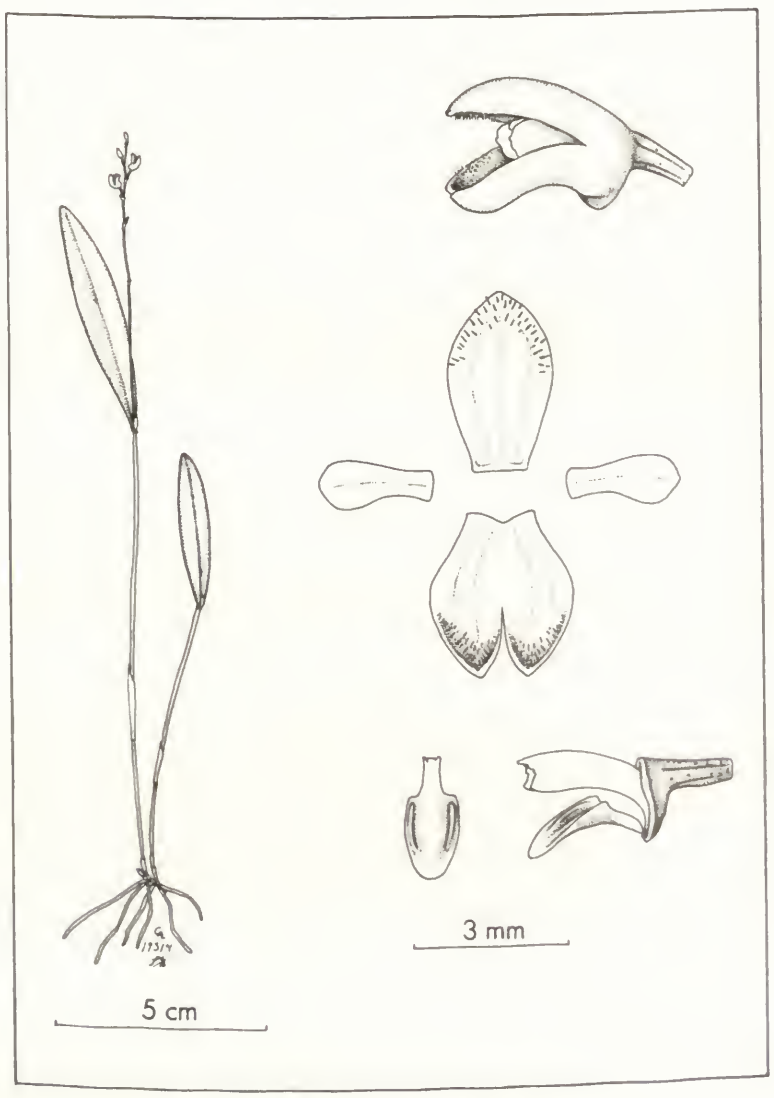
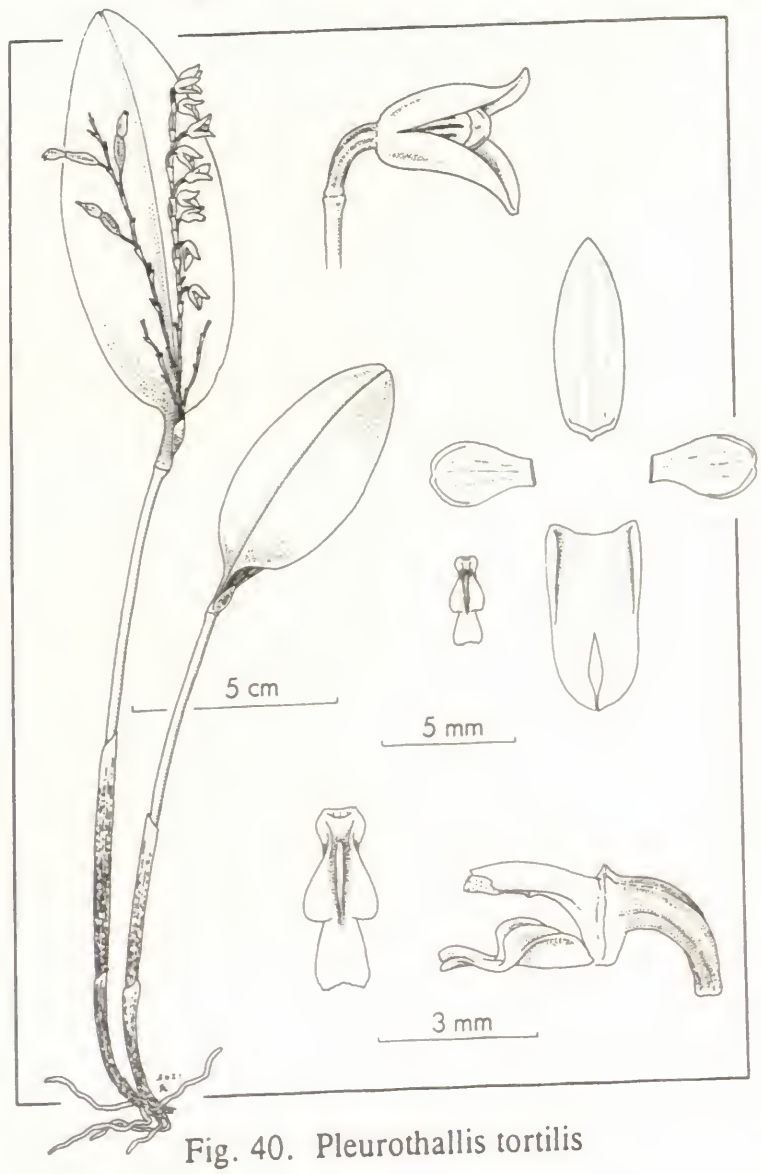


Fig. 39. Pleurothallis thomasii



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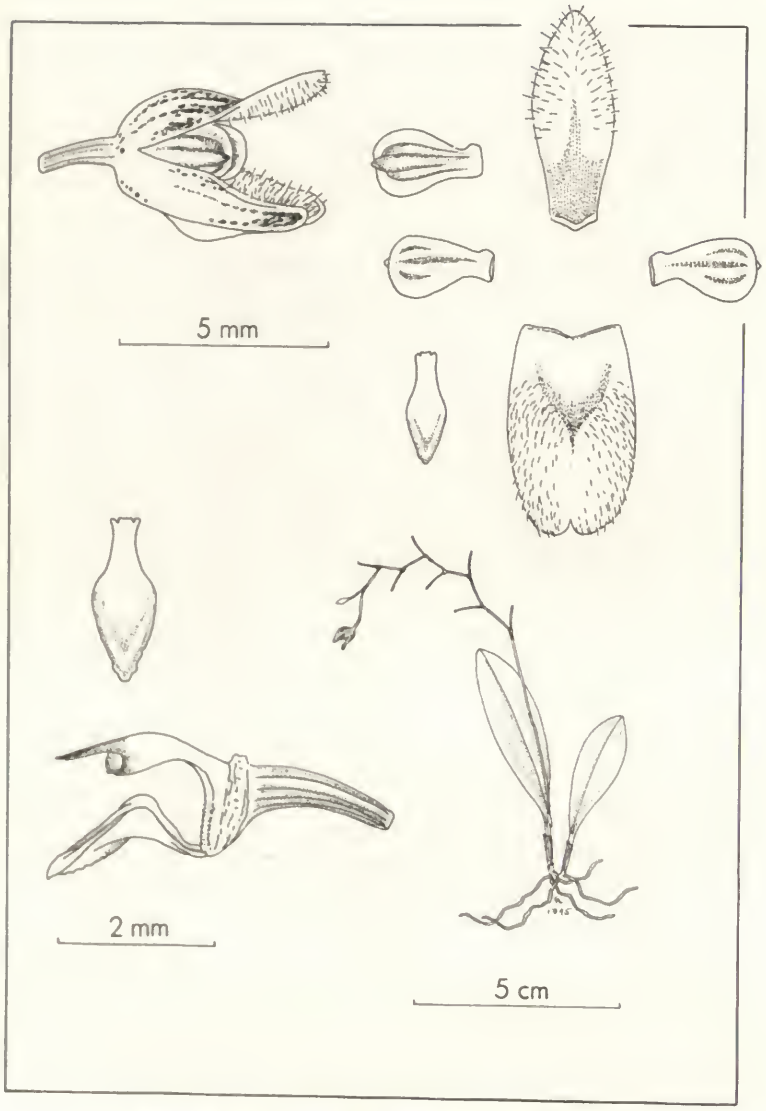

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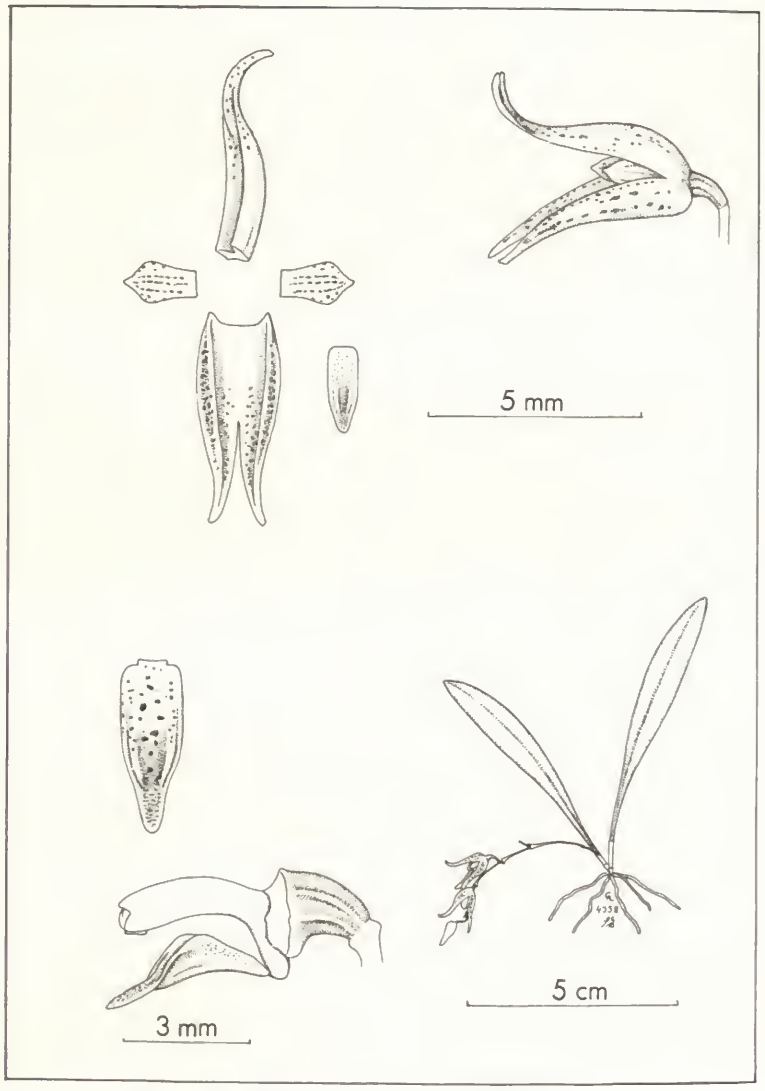

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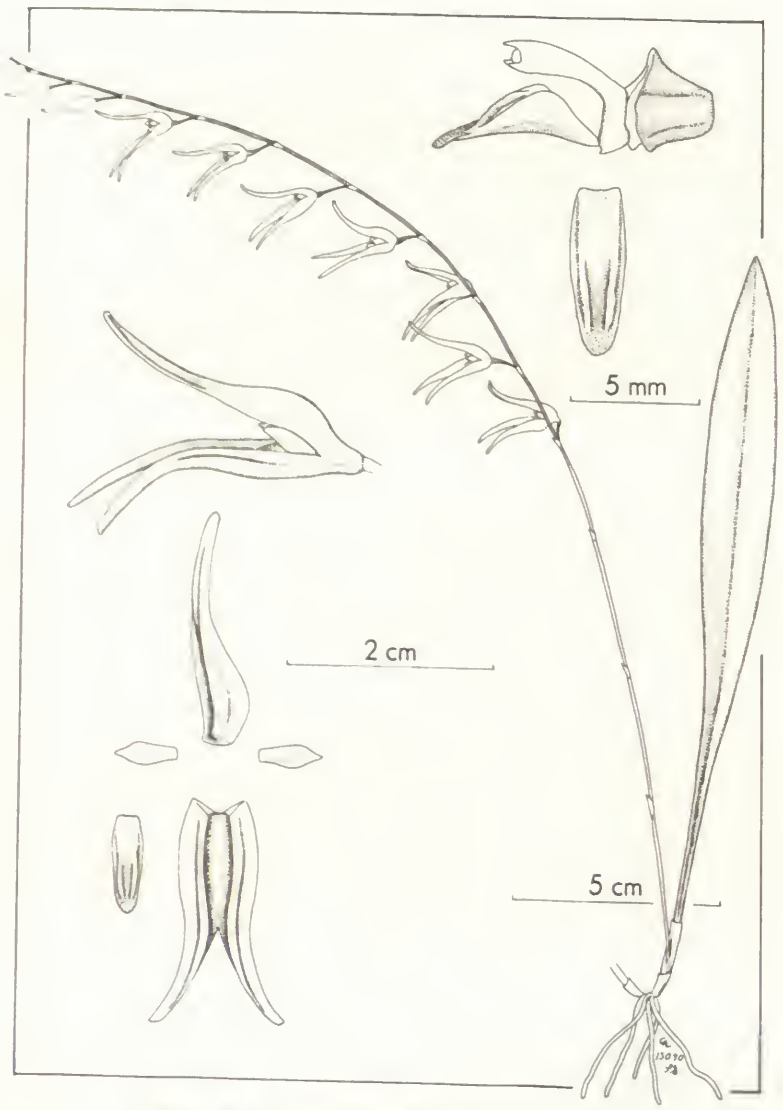
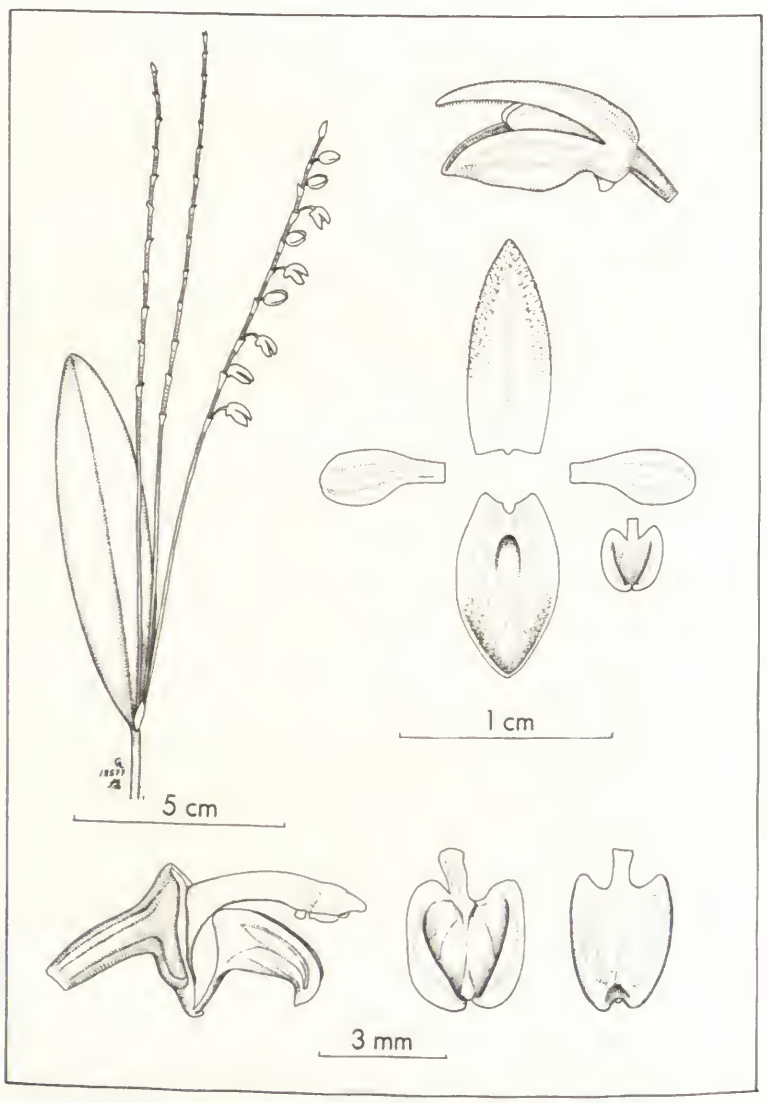


Fig. 43. Pleurothallis tripterantha



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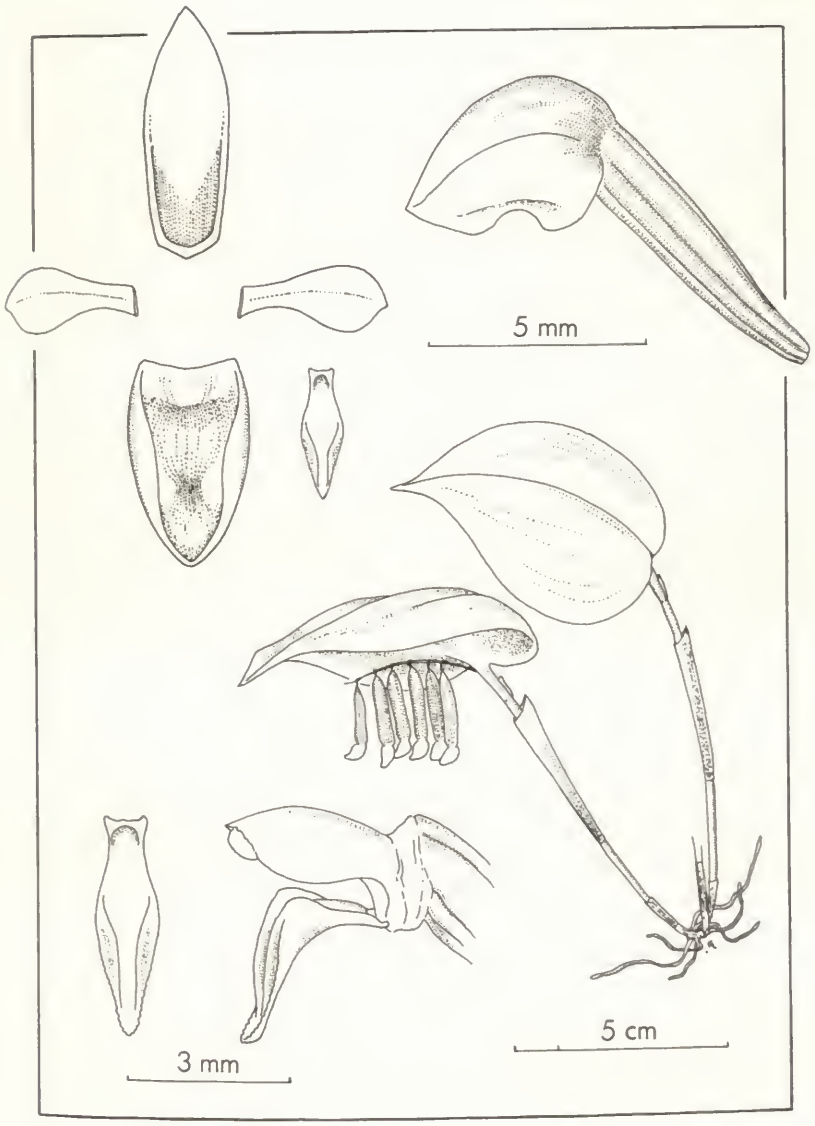

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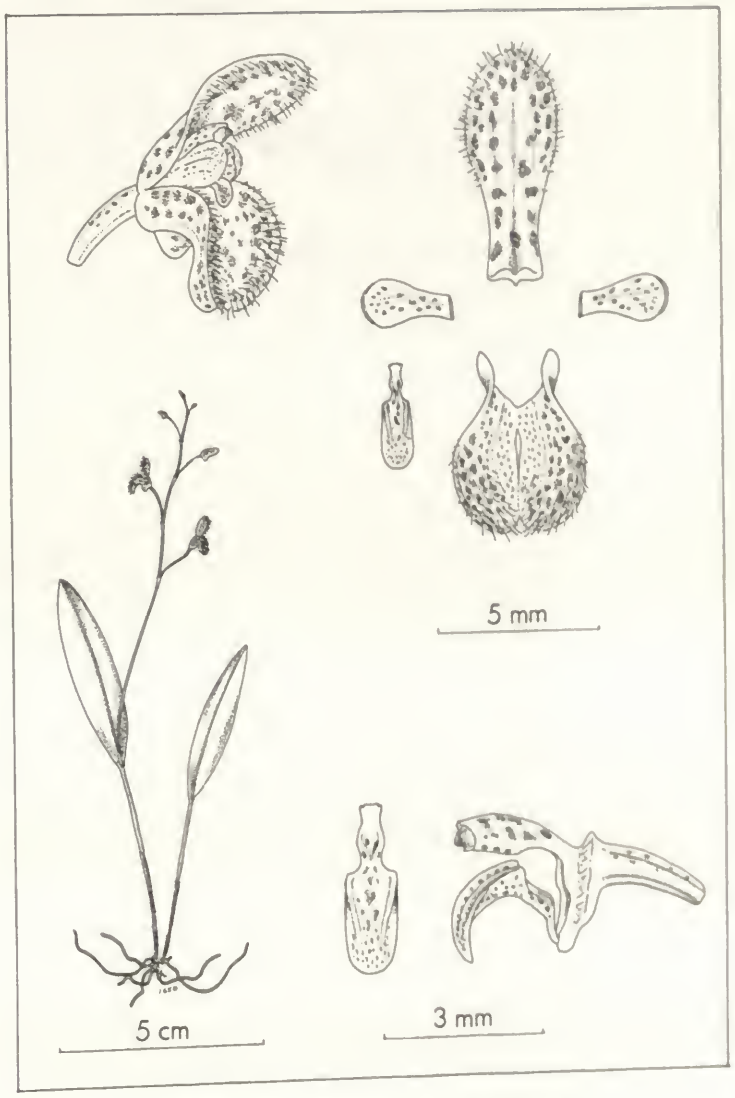

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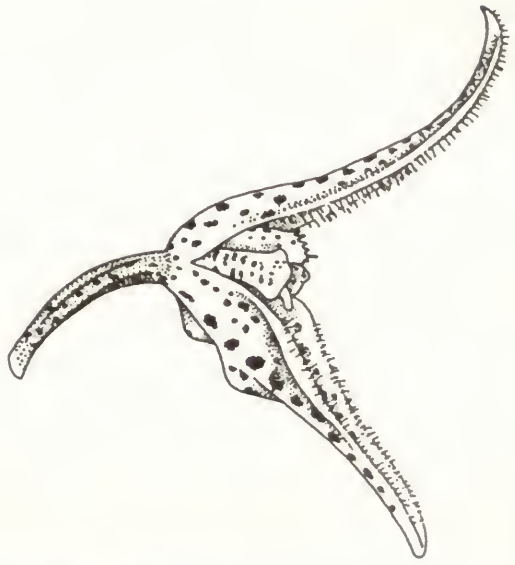
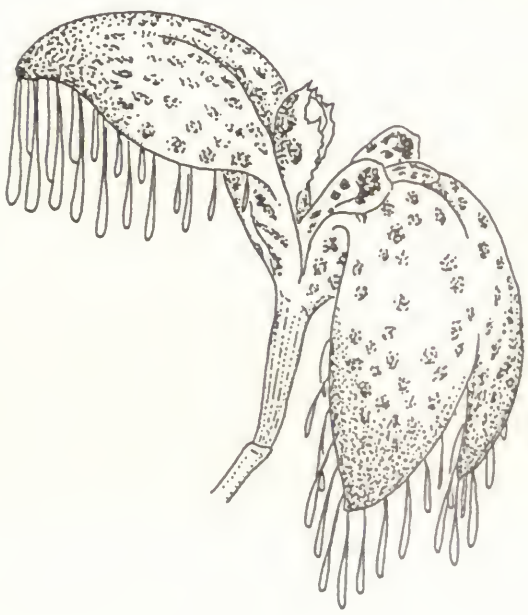
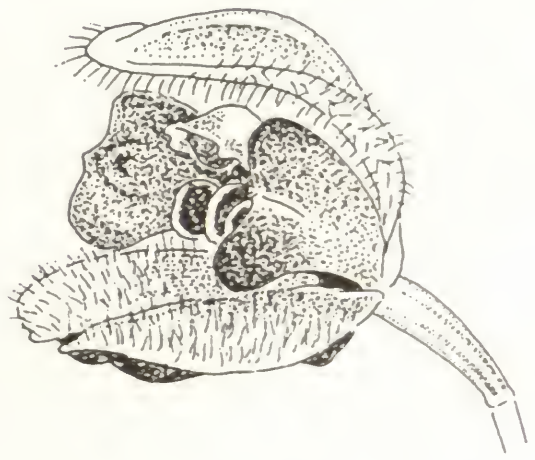
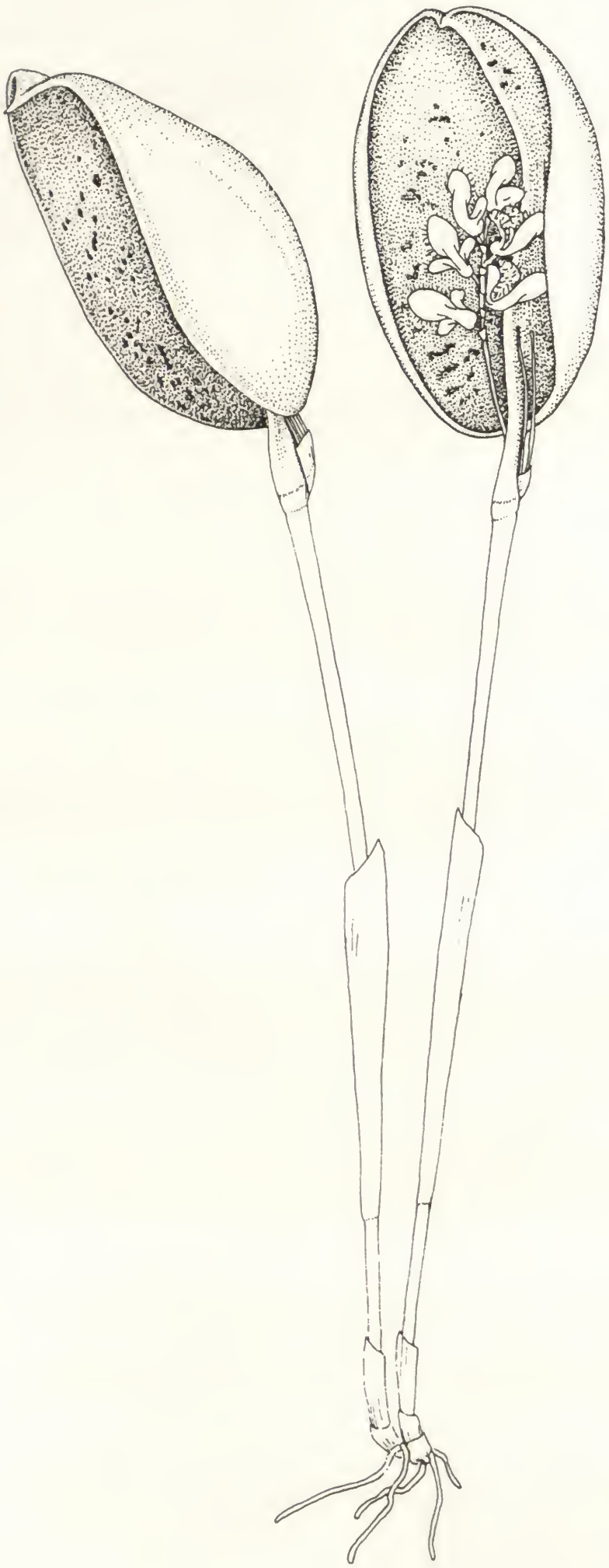
LINDLEY. J., 1842. *Pleurothallis*. Edwards' Bot. Reg. 28: Misc: 67-84.
_____ 1859. Folia Orchidacea *Pleurothallis* 9, 24, 28, 30, 31, 34, 35, 38, 39.
LUER. C., 1986. *Systematics of Pleurothallis*. Monogr. Syst. Bot. Missouri Bot. Gard. 20: 81, 83.









SYSTEMATICS OF *PLEUROTHALLIS* SUBGENUS *RESTREPIOIDIA*

ABSTRACT

Subgenus *Restrepioidia* Luer of *Pleurothallis* R.Br. is described. A key to the species with a description and illustration of each species is given.

New taxa:
Pleurothallis subgenus **Restrepioidia** section **Racemosae** Luer, sect. nov.
Pleurothallis medinae Luer & Portilla, sp. nov.

This taxon was first recognized as section *Restrepioideae* of *Pleurothallis* by Lindley in 1859. He included eight species in a conglomeration that he characterized by solitary, fasciculate flowers and filiform petals which are sometimes clavate. Two of the species are attributable to subgenus *Restrepioidia* [*P. hemirhoda* Lindl. and *P. tentaculata* (Poepp. & Endl.)], while the other six are referable to *Pleurothallis* subgenera *Ancipitia* (*P. crocodiliceps* Rchb.f. and *P. gratiosa* Rchb.f.), *Pleurothallis* section *Macrophyllae-Fasciculatae* (*P. filifera* Lindl.), and the genera *Myoxanthus* [*M. hystrix* (Rchb.f.) Luer and *M. reymondii* (Karst.) Luer] and *Restrepia* [*R. nittiorhyncha* (Lindl.) Garay].

To preserve the idea of the name *Restrepioideae*, the subgenus *Restrepioidia* was proposed (Luer, 1986). This was in spite of the fact that Lindley had attributed his *P. restrepioides* to his section *Elongatae*. Although the names are etymologically similar, *Restrepia* and *Restrepioidia* are not related. The closest affinity does indeed seem to be with subgenus *Elongatia*.

Pleurothallis tentaculata, the first species of the subgenus to be discovered, was collected in Peru by Poeppig and published as *Restrepia tentaculata* in 1815. Lindley transferred it to *Pleurothallis* in 1836, and listed it first in section *Restrepioideae* in his monograph on *Pleurothallis* of 1859. The next species attributable to this subgenus is *P. hemirhoda*, which was originally published by Lindley as *Restrepia vittata* in 1848, but due to his pre-existing *P. vittata*, he published the new combination in *Pleurothallis* in 1853.

In 1855, Reichenbach published simultaneously in one column of one page three similar species: *P. glossopogon, P. biserrula* and *P. sirene* in that order, and comparing each to *P. bogotensis* Lindl. [=*P. phalangifera* (Presl) Rchb.f.]. Even with the specimens in hand, Reichenbach's differentiation is not clear. All three were collections by Wagener from the Eastern Cordillera of Colombia. *Pleurothallis sirene* was misidentified as *P. biserrula* in *Venezuelan Orchids Illustrated*.

This subgenus of a few, medium-sized to large species is characterized by a well-developed ramicaul, a sessile or petiolate leaf, and a single-flowered or racemose inflorescence, the basis for recognizing two sections. The habit is similar to that of most species in subgenus *Elongatia*: a well-developed ramicaul and an elliptical leaf. The distinguishing characters of subgenus *Restrepioidia* are found in the basically similar, relatively large flowers. The sepals are membranous and glabrous with the dorsal sepal free and with the laterals connate, although sometimes lightly so, into a scaphoid synsepal. The petals are narrowly attenuate above an ovate, basal portion. The lip is three-lobed with antrorse lobes near the base and a large middle lobe. The column is short, wingless, irregularly hooded, and with a short, stout, pedestal-like foot to which the lip is inflexibly attached.

SUBGENUS *RESTREPIOIDIA*

Pleurothallis subgenus **Restrepioidia** (Lindl.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 20: 70, 1986.

Bas.: *Pleurothallis* sect. *Restrepioideae* Lindl., Folia Orch. *Pleurothallis* 20, 1859.
Lectotype: *Pleurothallis hemirhoda* Lindl.
Ety.: Named for a similarity of the habit to the genus *Restrepia* H.B.K.

Plants perennial, medium in size to large. Ramicauls elongated, non-pseudobulbous, unifoliate. **Leaf** erect, coriaceous or thickly coriaceous, more or less elliptical, acute to obtuse, the base sessile. **Inflorescence** a loose, simultaneously several-flowered raceme, or a succession of single flowers, subtended by a narrow spathe at the base of the leaf, the apex of the ramicaul; floral bracts tubular; pedicels longer than the floral bract; ovary smooth, trivalvate; flowers large, resupinate; **sepals** membranous, glabrous, the dorsal sepal free from the lateral sepals, the lateral sepals often connate into a concave synsepal; **petals** more or less elliptical above the base, acute, long-acuminate into an elongated, filiform apex; **lip** trilobed below the middle, the lobes antrorse, obtuse to elongate, the apical segment narrow, the base truncate, attached to the end of the column; **column** short, semiterete, more or less toothed at the apex, the anther, rostellum and stigma ventral, the pollinia 2, obovoid, with a minute viscidium, the base of the column thickened, concave, pedestal-like with the apex of the ovary.

Seven species are distributed in the Andes from western Venezuela into Bolivia. The subgenus is divided into two sections.

Pleurothallis subgenus **Restrepioidia** section **Restrepioideae**

Type: *Pleurothallis hemirhoda* Lindl.

This section, composed of five species, is characterized by a successively single-flowered inflorescence.

Pleurothallis subgenus **Restrepioidia** section **Racemosae** Luer, sect. nov.

Type: *Pleurothallis glossopogon* Rchb.f.
Inflorescentia racemosa.

This section of two species is characterized by a simultaneously flowered, racemose inflorescence.

BINOMIALS PUBLISHED IN *PLEUROTHALLIS* ATTRIBUTABLE TO SUBGENUS *RESTREPIOIDIA*

P. birchenallii Rolfe = **P. glossopogon**
P. biserrula = **P. glossopogon**
P. fustifera Luer .....Fig. 1
P. glossopogon Rchb.f. .....Fig. 2, 3.
P. hemirhoda Lindl. .....Fig. 4.
P. hoppii Schltr. = **P. glossopogon**
P. insignis Rolfe = **P. glossopogon**
P. medinae Luer & Portilla .....Fig. 5.
P. nuda (Klotzsch) Rchb.f. = **P. hemirhoda**
P. scapha Rchb.f. = **P. sirene**
P. sirene Rchb.f. .....Fig. 6.
P. talpinarioides Garay & Dunst. .....Fig. 7.
P. tentaculata (Poepp. & Endl.) Lindl. .....Fig. 8.

KEY TO THE SECTIONS AND SPECIES OF SUBGENUS *RESTREPIOIDIA*

1 Inflorescence single-flowered.....2
1' Inflorescence racemose.....6

Sect. *Restrepioideae*

2 Blade of the lip tubular.....3
2' Blade of the lip elliptical, not tubular.....4

3 Leaf sessile; sepals more than 2.5 cm long.....*P. tentaculata*
3' Leaf petiolate; sepals less than 2 cm long.....*P. talpinarioides*

4 Lip fringed.....*P. hemirhoda*
4' Lip not fringed.....5

5 Lip with the lobes dilated, glabrous.....*P. fustifera*
5' Lip with the lobes narrow, ciliate at the apex.....*P. medinae*

Sect. *Racemosae*

6 Lip with the apex acute, slightly fringed.....*P. sircne*
6' Lip with the apex obtuse, fimbriate-papillose.....*P. glossopogon*

Pleurothallis fustifera Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 76: 173, 1999.

Ety.: From the Latin *fustifer*, "club-bearing," referring to the labellum.

Plant small, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 1.5-3 cm long, with a tubular sheath below the middle and 1-2 shorter sheaths at the base. **Leaf** erect, thickly coriaceous, elliptical, subacute to obtuse, petiolate, 3-5.5 cm long, 1.5-1.8 cm wide, cuneate below into the petiole 7-8 mm long. **Inflorescence** a succession of solitary flowers, borne from an erect spathe 5-10 mm long, at the apex of the ramicaul; peduncle ca. 1 mm long within the spathe; pedicel erect, 5-9 mm long; floral bracts thin, tubular, 5-6 mm long; ovary 3-4 mm long; **sepals** membranous, glabrous, the dorsal sepal free, narrowly ovate, acute, 17 mm long, 4 mm wide, 3-veined, the lateral sepals connate into an ovate, acute, acuminate, concave synsepal, 17 mm long, 6 mm wide, 6-veined; **petals** translucent, elliptical in the basal fourth, minutely denticulate, with the apex acute, long-acuminate, 15 mm long, 2.5 mm wide, 3-veined; **lip** trilobed, 8 mm long, 3 mm wide, the midlobe elliptical, subacute to obtuse, convex, entire, the basal lobes on the basal fourth, antrorse, clavate-pedunculate, broadly rounded at the apex, the base subtruncate, hinged to the base of the column-foot; **column** conical-semiterete, 2 mm long, the anther, rostellum and stigma ventral, the foot short, thick, pedestal-like with the apex of the ovary.

PERU: **San Martín**: south of Moyabamba, along Río Yanayacu, a tributary of Río Mayo, alt. 2,600 ft., *K. Tokach P-48* (Holotype: MO), C. Luer illustr. 18094.

Among the members of this subgenus, this apparently rare species, collected by Kenneth Tokach of Tacoma, WA, is distinguished by the small habit, pedicellate leaves, and single flowers produced successively in a fascicle with a small spathe. The flowers are comparatively large with the dorsal sepal free from the synsepal. The apices of the petals are long-acuminate. The basal lobes of the lip are proportionately large, antrorse and clavate.

Pleurothallis glossopogon Rchb.f., Bonplandia 3: 71, 1855.

Ety.: From the Greek *glossopogon*, "a bearded lip," referring to the labellum.

Syn.: *Pleurothallis biserrula* Rchb.f., Bonplandia 3: 71, 1855.
Ety.: From the Latin *biserrulus*, "with two saw-toothed edges," referring to the labellum.

Syn.: *Pleurothallis insignis* Rolfe, Gard. Chron. 1: 577, 1887.
Ety.: From the Latin *insignis*, "remarkable," in allusion to outstanding properties of the plant.

Syn.: *Humboldtia biserrula* (Rchb.f.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.
Syn.: *Humboldtia glossopogon* (Rchb.f.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.
Syn.: *Humboldtia insignis* (Rolfe) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Pleurothallis birchenallii* Rolfe, Bull. Misc. Inform. 365, 1909.
Ety.: Named in honor of J. Birchenall, who collected this species.

Syn.: *Pleurothallis hoppii* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 27: 64, 1924.
Ety.: Named in honor of W. Hopp, who collected this species.

Plant medium to large in size, epiphytic, caespitose; roots coarse. Ramicauls smooth, stout, erect, 10-30 cm long, with a tubular sheath below the middle and 1-2 shorter sheaths at the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, 6-15 cm long, 1.5-4.5 cm wide, cuneate or rounded below to the sessile base. **Inflorescence** a simultaneously few- to several-flowered, loose, subsecund raceme, 10-35 cm long including the peduncle 5-12 cm long, borne from a reclining spathe 1.5-3 cm long, at the base of the leaf; pedicel slender, suberect, 15-30 mm long; floral bracts thin, tubular, 5-10 mm long; ovary 8-10 mm long; **sepals** purple to brown, or greenish or yellowish white, dotted or suffused with purple, usually along the veins, membranous, glabrous, the dorsal sepal free, narrowly ovate, acute, acuminate, 30-45 mm long, 7-8 mm wide, 3-veined, the lateral sepals connate into an ovate, acute, concave synsepal, 30-45 mm long, 10-11 mm wide, 6-veined; **petals** translucent, veined in purple, elliptical in the basal fifth, minutely denticulate, with the apex acute, long-acuminate, filiform, 25-40 mm long, 4-5 mm wide, 3-veined; **lip** green, suffused with brown or purple, trilobed, 15 mm long, 3 mm wide, the midlobe narrowly ovate, acute, entire to minutely denticulate at the apex, the lateral lobes above the base, narrowly oblong, obtuse, curved, antrorse, 5-6 mm long, the base subtruncate, hinged to the base of the column-foot; **column** green, short, semiterete, 3 mm long, the anther, rostellum and stigma ventral, the foot short, thick, pubescent, pedestal-like with the apex of the ovary.

COLOMBIA: **Santander**: Aspasica, alt. 7,000 ft., *H. Wagener 339* (Holotype: W; fragment: K); San Pedro, alt. 6,000-7,000 ft., *H. Wagener 551* (holotype of *P. biserrula*: W; fragment: K), C. Luer illustr. 19324; above Bucaramanga toward Berlin, alt. 2600-2800 m, collected by E. Valencia, cultivated at Colomborquídeas, 26 Mar. 1997, *R. Escobar 8295* (MO). **Norte de Santander**: near Velez, flowered in cultivation, April 1909, *J. Birchenall s.n.* (holotype of *P. birchenallii*: K); Paramo de Jurisdicciones, alt. 3150 m, 10 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10233* (SEL). **Nariño**: near Río Pasto, alt. 2300 m, Oct. 1921, *W. Hopp 122* (holotype of *P. hoppii* destroyed at B); above Pasto, *F.C. Lehmann 7133* (K); Páramo de la Achupalles, between Almaquer and La Cruz, alt. 2800-3000 m, *F.C. Lehmann 6291* (K).
Without collection data, flowered in cultivation at Kew Gardens (holotype of *P. insignis*: K).
VENEZUELA: **Trujillo**: Boconó, Páramo de Guaramacal, alt. 2800 m, 29 Apr. 1988, *L.J. Dorr, L.C. Barnett, N. Cuello & G.M. Diggs 5030* (AMES, NY); Carache, between Pico de Jabon and Páramo de Turmal, alt. 2550 m, 12 May 1988, *L.J. Dorr & L.C. Barnett 5160* (AMES, NY).

This spectacular species is relatively frequent in parts of the Eastern Cordillera of Colombia and adjacent Venezuela, and infrequent in the central and western cordilleras of Colombia. When published in *Bonplandia* in 1855, it was followed immediately by the description of *P. biserrula*, a specimen so similar that they undoubtedly represent the same species. I have chosen to use the first publication on the page even though it follows the second alphabetically. Reichenbach has faithfully illustrated the lip of *P. glossopogon* on the specimen, but none on that of *P. biserrula*. Hydration of a flower from the type-specimen reveals insignificant differences.

Pleurothallis glossopogon is characterized by a large, sessile, oblong leaf borne by a somewhat longer, stout ramicaul. The raceme arises from the base of the leaf with a large, reclining spathe. The loosely flowered raceme eventually far surpasses the leaf, usually with several flowers open simultaneously, which suggest birds in flight. The dorsal sepal is long-acuminate and free from the lateral sepals. The

lateral sepals are coherent into a narrowly ovate synsepal, but the sepals sometimes part. The apices of the petals are long-attenuate and spreading. The lip, possibly mimicking a caterpillar, is three-lobed with the middle lobe markedly fimbriate-papillose. The uncinate basal lobes are conspicuous as they arch forward above the basal third of the lip.

Pleurothallis sirene, a third specimen described simultaneously by Reichenbach, is so closely related to *P. glossopogon* that they possibly represent merely variations, differing only in the anterior lobe of the lip. This portion of the lip of *P. glossopogon* is fimbriate-papillose, while in *P. sirene*, it is slender, acute and only minutely erose at the apex.

Pleurothallis hemirhoda Lindl. in Paxton's Fl. Gard. 3: 133, 1852.

Ety.: From the Greek *hemirhoda*, "half rosy-red," referring to the color of the flower.

Syn.: *Restrepia vittata* Lindl., J. Hort. Soc. 3: 314, 1848, not *P. vittata* Lindl., 1838.
Ety.: From the Latin *vittatus*, "striped," referring to the striped lip.

Syn.: *Restrepia nuda* Klotzsch, Allg. Gartenzeitung 20: 275, 1852.
Ety.: From the Latin *nudus*, "naked," referring to the flower borne bare away from the leaf.

Syn.: *Restrepia biflora* Regel, Ann. Sci. Nat. Bot. ser. 4(4): 373, 1853.
Ety.: From the Latin *biflorus*, "with two flowers," referring to the two flowers present.

Syn.: *Restrepia vittata* var. *biflora* Regel, Ann. Sci. Nat. Bot. ser. 4(6): 373, 1856.

Syn.: *Pleurothallis nuda* (Klotzsch) Rchb.f., Ann. Bot. Syst. 6: 184, 1861.

Syn.: *Humboldtia hemirhoda* Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Plant medium to large in size, epiphytic, caespitose; roots coarse. Ramicauls dark purple, smooth, stout, erect, 8-35 cm long, with a spotted, tubular sheath below the middle and 1-2 shorter sheaths at the base. **Leaf** erect, thickly coriaceous, elliptical, subacute, sessile, 8-15 cm long, 1.5-4 cm wide, cuneate below to the base. **Inflorescence** a succession of solitary flowers, borne from a reclining spathe 1-2 cm long, at the base of the leaf; peduncle 5-8 mm long within the spathe; pedicel slender, flexible, suberect, 10-25 mm long; floral bracts thin, tubular, 5-10 mm long; ovary 5-10 mm long; **sepals** white to yellowish or greenish white, suffused or veined in red, membranous, glabrous, the dorsal sepal free, narrowly elliptical-ovate, acute, 20-30 mm long, 5-6 mm wide, 3-veined, the lateral sepals connate into an elliptical-ovate, acute, concave synsepal, 20-30 mm long, 7-9 mm wide, 6-veined; **petals** translucent, edged and veined in purple, elliptical in the basal fourth, denticulate-fimbriate, with the apex acute, long-acuminate, 18-25 mm long, 2-2.5 mm wide, 1-veined; **lip** trilobed, 16-21 mm long, 4.5-8 mm wide, the midlobe yellow, with 3-5 purple stripes, obovate, subacute, convex, fimbriate, the lateral lobes on the basal fourth, white, erect, broad, obtuse, antrorse, the base subtruncate, concave to accommodate the column-foot, inflexibly attached to the tip of the column-foot; **column** purple, short, semiterete, denticulate at the apex, 2-3 mm long, the anther, rostellum and stigma ventral, the foot short, thick, concave, pedestal-like with the apex of the ovary.

COLOMBIA: Without collection data, flowered in cultivation by *J. Linden s.n.* (Holotype of *Restrepia vittata*: K); without collection data, flowered in cultivation at St. Petersburg Botanical Garden (holotype of *Restrepia biflora*: LE).
VENEZUELA: **Dist. Fed.**: near Caracas, flowered in cultivation, collected by *H. Wagener 91* (holotype of *Restrepia nuda*: W); Cerro de Naiguatá, alt. 900-1000 m, *J.A. Steyermark 97516* (VEN). **Aragua**: Parqué Nacional Henry Pittier, between Tremaria and Regresiva del Diablo, alt. 1000 m, 30 Apr. 1972, *J.A. Steyermark 105900* (AMES, VEN); same area, *T. Lasser 2066* (VEN); same area, *E. Foldats 2893* (VEN); same area, cultivated at El Hatillo, June 1965, *G.C.K. & E. Dunsterville 283.*
ECUADOR: **Pastaza**: near Mera, alt. 1250 m, 14 Oct. 1984, *C.H. Dodson, P. Dodson & A. Hirtz 15354* (MO). **Morona-Santiago**: above Pangui, May 1992, *E. Dreise s.n.* (MO). **Zamora-Chinchipe**: above Valladolid, alt. 2000 m, 18 Mar. 1984, *C. Luer, S. Dalström et al. 9609* (MO); between Loja and Zamora, alt. 1500 m, 20 Feb. 1986, *C. Luer, J. Luer, A. Hirtz et al. 11963* (MO); west of Zumba, alt. 1800 m, 25 Jan. 1989, *S. Dalström & T. Höijer 1190* (MO); north of Valladolid, alt. 2100 m, 19 May 1986, *D. D'Alessandro 680* (MO);
PERU: **Huánuco**: Casapi, *Mathews 1915* (K). **San Martín**: Lamas, Alonso de Alvarado, San Juán de Pacayzapa, alt. 900 m, 10 Apr. 1973, *J. Schuncke 5895* (NY); Zepelacio, near Moyabamba, alt. ca. 1100 m, May 1934, *Klug 3634* (AMES, K, S).
BOLIVIA: **Cochabamba**: along abandoned old road from Villa Tunari to Cochabamba, alt. 700 m, 30 Jan. 1997, *C. Luer, J. Luer, R. Vásquez, D. Ric & W. Teague 18336* (MO).

Although widely distributed in the Andes, this handsome species is relatively infrequent. It is recognizable even when out of flower. The stout ramicauls are smooth and dark purple with a purple-spotted sheath below the middle. The stiff, thick, dark purple leaf is more or less concave or conduplicate at the sessile base. Large, widely expanded, single flowers, sometimes two simultaneously, are produced on relatively long, flexible pedicels. The narrow dorsal sepal is free; the laterals are connate into a scaphoid synsepal that is filled with the large, purple-striped, fringed lip. Low, obtuse, marginal lobes are present above the base. The petals are long-pointed above the fringed basal portion. Superficially, the flower resembles one of a *Restrepia*, and it was described three times in that genus.

Pleurothallis medinae Luer & Portilla, sp nov.

Ety.: Named for Hugo Medina of Gualaceo, Ecuador, co-collector of this species.

Species haec *P. hemirhodae* Lindl. affinis, sed labelli lobis basalibus anguste elongatis apice recurvis ciliatisque, et lobo mediano concavo glabro differt.

Plant medium in size, epiphytic, shortly repent to caespitose; roots numerous, coarse. Ramicauls stout, erect, 8-10 cm long, with a tubular sheath below the middle and 1-2 shorter sheaths at the base. **Leaf** erect, thickly coriaceous, elliptical, obtuse, sessile, 8-9 cm long, 2.5-3 cm wide, cuneate below to the base. **Inflorescence** a succession of solitary flowers, borne from a reclining spathe 1.5-2 cm long, at the base of the leaf; peduncle 5-6 mm long within the spathe; pedicel slender, 13-14 mm long; floral bract thin, tubular, 7-9 mm long; ovary 7 mm long; **sepals** light yellowgreen, membranous, glabrous, the dorsal sepal free, elliptical, acute, 18 mm long, 6.5 mm wide, 3-veined, the lateral sepals connate into an elliptical, subacute, concave synsepal, 18 mm long, 8 mm wide, 6-veined; **petals** light yellow-green with the apices light brown, elliptical in the basal third, serrate, with the apex acute, long-acuminate, 15 mm long, 2.5 mm wide, 3-veined; **lip** trilobed, 14 mm long, 5.5 mm wide, the midlobe yellow with the apical half suffused with dark purple, elliptical-obovate, obtuse, shallowly concave, glabrous (at most, cellular), the lateral lobes on the basal fourth, yellow, erect, linear-oblong, antrorse, 5 mm long, with the apices recurved and ciliate, the base subtruncate, inflexibly attached to the column-foot; **column** white, semiterete, denticulate at the apex, 4 mm long, the anther, rostellum and stigma ventral, the foot short, thick, concave, pedestal-like with the apex of the ovary.

ECUADOR: **Morona-Santiago**: Sinai, near Macas, alt. 1200 m, collected by Hugo Medina and Ivan Acaro, Nov. 1999, cultivated at Ecuagenera, Apr. 2000, by *J. Portilla 256* (Holotype: MO), C. Luer illustr. 19371.

This species is known only from one area in eastern Ecuador where it has been recently discovered. It is similar to the well-known *P. hemirhoda* with a single flower borne from a reclining spathe at the base of a leathery, elliptical leaf. Although smaller, the sepals and petals are similar, but the lip is more similar to that of the racemose species of the subgenus with long, antrorse, basal lobes.

Pleurothallis sirene Rchb.f., Bonplandia 3: 71, 1855.

Ety.: Named for *Sirene*, a Greek, mythological nymph in the form of birds.

Syn.: *Humboldtia sirene* Kuntze, Rev. Gen. Pl. 2: 668, 1891.

Syn.: *Pleurothallis scapha* Rchb.f., Gard. Chron. 2: 162, 1874.
Ety.: From the Greek *skaphe*, "a small boat," referring to the synsepal.

Plant medium to large in size, epiphytic, caespitose; roots coarse. Ramicauls smooth, stout, erect, 10-30 cm long, with a tubular sheath below the middle and 1-2 shorter sheaths at the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, subsessile, 9-15 cm long, 1.5-3 cm wide, cuneate below to the base. **Inflorescence** a simultaneously few- to several-flowered, loose, subsecund raceme, 10-20 cm long including the peduncle 4-5 cm long, borne from a reclining spathe 1.5-3 cm long, at the base of the leaf; pedicel slender, suberect, 20-30 mm long; floral bracts thin, tubular, 5-10 mm long; ovary 8-10 mm long; **sepals** purple, brown, greenish or yellowish white, dotted or suffused with purple, usually along the veins, membranous, glabrous, the dorsal sepal free, narrowly ovate, acute, acuminate, 30-45 mm long, 7-8 mm wide, 3-veined, the lateral sepals connate into an ovate, acute, concave synsepal, 30-45 mm long, 10-11 mm wide, 6-veined; **petals** translucent, veined in purple, elliptical in the basal fifth, minutely denticulate, with the apex acute, long-acuminate, filiform, 25-40 mm long, 4-5 mm wide, 3-veined; **lip** green, suffused with brown or purple, trilobed, 15 mm long, 3 mm wide, the midlobe narrowly ovate, acute, entire to minutely denticulate at the apex, the lateral lobes above the base, narrowly oblong, ob-

tuse, curved, antrorse, 5-6 mm long, the base subtruncate, hinged to the base of the column-foot; **column** green, short, semiterete, 3 mm long, the anther, rostellum and stigma ventral, the foot short, thick, pubescent, pedestal-like with the apex of the ovary.

COLOMBIA: **Norte de Santander**: old dept. of Ocaña, San Pedro, alt. 7,000 ft., Mar., *H. Wagener 558* (Holotype: W, fragment: K); La Baja, Dec. 1848, *L. Schlim 21* (W). **Cundinamarca**: Sueva Valley, west of Junín, alt. 2400 m, 21 Apr. 1944, *M.L. Grant 9099* (US). **Valle del Cauca**: Buga, Finca La Palerma, west of El Placer, alt. 2300 m, 13 Sept. 1991, *P. Silverstone-Sopkin & J. Girardo 6383* (CUVC, MO). Without collection data, flowered in cultivation by *J. Day 358* (holotype of *P. scapha*: W); as *P. biserrula*, cultivated by W. Bull, 1881, figured in Gard. Chron. 1881, and Bot. Mag. 7431 (K).
VENEZUELA: **Trujillo**: Boconó-Guaramacal road, alt. 7,000 ft., July 1962, *G.C.K. Dunsterville 715*.

This spectacular species is relatively frequent in parts of the Eastern Cordillera of Colombia and adjacent Venezuela, and infrequent in the central and western cordilleras of Colombia. It is closely related to *P. glossopogon* Rchb.f., differing only in the anterior lobe of the lip. This portion of the lip of *P. glossopogon* is thickened and markedly fimbriate-papillose; in *P. sirene*, it is slender, acute, and only minutely denticulate.

Pleurothallis talpinarioides Garay & Dunst., Venez. Orch. Ill. 6: 368, 1976.

Ety.: Named for a supposed resemblance to *Pleurothallis talpinaria* Rchb.f.

Plant medium to large in size, epiphytic, caespitose; roots slender. Ramicauls smooth, slender, erect, 8-11 cm long, with a minutely spotted, tubular sheath below the middle and 1-2 shorter sheaths at the base. **Leaf** erect, coriaceous, elliptical, subacute, petiolate, 10-12 cm long, 2.5-3 cm wide, cuneate below to a more or less twisted petiole ca. 1 cm long. **Inflorescence** a succession of solitary flowers, borne from an erect spathe 10-18 mm long, at the apex of the ramicaul; peduncle ca. 5 mm long within the spathe; pedicel slender, suberect, 10-20 mm long; floral bracts thin, tubular, 5-7 mm long; ovary 6 mm long; **sepals** rose-white, membranous, glabrous, the dorsal sepal free, narrowly elliptical-ovate, acute, 14-15 mm long, 4-5 mm wide, 3-veined, the lateral sepals connate into an elliptical-ovate, subacute, concave synsepal, 14-16 mm long, 5 mm wide, 6-veined; **petals** translucent, purple with pale margins, veined in purple, elliptical in the basal fifth, minutely denticulate, with the apex acute, long-acuminate, filiform, 13 mm long, 3 mm wide, 3-veined; **lip** dark purple, trilobed, 12-14 mm long, 2 mm wide, 2.5 mm deep, 3 mm wide across expanded basal lobes, the midlobe narrowly fusiform, acute, with the sides thick, revolute into a tube, the margins minutely denticulate toward the base, the basal lobes on the basal fifth portion, erect, broad, obtuse, antrorse, the base subtruncate, concave to accommodate the column-foot, hinged to the base of the column-foot; **column** purple, short, semiterete, 2 mm long, the anther, rostellum and stigma ventral, the foot short, thick, pedestal-like with the apex of the ovary.

VENEZUELA: **Táchira**: Cerro de la Mina, near Santana, alt. ca. 1500 m, collected by R. Mejia, June 1972, *G.C.K. Dunsterville 1224* (Holotype: AMES), C. Luer illustr. 19184.

Although named for a mistaken belief that it is similar to *P. talpinaria*, this species is little more than a small, geographical variation of *P. tentaculata*. Apparently it is endemic in western Venezuela, while *P. tentaculata* occurs in southeastern Ecuador and northern Peru. *Pleurothallis talpinarioides* is also closely related to *Pleurothallis hemirhoda*.

Pleurothallis talpinarioides differs from *P. tentaculata* in a smaller habit with smaller flowers. Instead of the leaves being cuneate and sessile or subsessile, the leaves are petiolate with the petiole more or less twisted.

Pleurothallis tentaculata (Poepp. & Endl.) Lindl., Comp. Bot. Mag. 2: 354, 1836.

Bas.: *Restrepia tentaculata* Poepp. & Endl., Nov. Gen. Sp. 1: 34, 1836.
Ety.: From the Latin *tentaculatus*, "with tentacles," referring to the long, narrow floral parts.

Syn.: *Humboldtia tentaculata* Kuntze, Rev. Gen. Pl. 2: 668, 1891.

Plant medium to large in size, epiphytic, caespitose; roots slender. Ramicauls smooth, stout, erect, 10-30 cm long, with a spotted, tubular sheath below the middle and 1-2 shorter sheaths at the base. **Leaf** erect, coriaceous, elliptical, subacute, sessile to subsessile, 10-20 cm long, 1.5-3 cm wide, cuneate below to the base. **Inflorescence** a succession of solitary flowers, borne from a reclining spathe 1-2.5 cm long, at the base of the leaf; peduncle 5 mm long within the spathe; pedicel slender, flexible, suberect, 30 mm

long; floral bracts thin, tubular, 5-10 mm long; ovary 10-13 mm long; **sepals** white with minute, red dots along the veins, membranous, glabrous, the dorsal sepal free, narrowly elliptical-ovate, acute, 25-35 mm long, 5-6 mm wide, 3-veined, the lateral sepals connate into an elliptical-ovate, acute, concave synsepal, 25-35 mm long, 8-9 mm wide, 6-veined; **petals** translucent, edged and veined in purple, elliptical in the basal fifth, minutely denticulate, with the apex acute, long-acuminate, filiform, 25-31 mm long, 3 mm wide, 3-veined; **lip** dark purple, trilobed, 26-30 mm long, 3 mm wide, the midlobe narrowly fusiform, acute, with the sides thick, revolute into a tube, the margins minutely denticulate, the lateral lobes on the basal fifth, erect, broad, obtuse, antrorse, the base subtruncate, concave to accommodate the column-foot, hinged to the base of the column-foot; **column** purple, short, semiterete, denticulate at the apex, 5 mm long, the anther, rostellum and stigma ventral, the foot short, thick, concave, pedestal-like with the apex of the ovary.

PERU: **Huánuco**: near Pampayacu and Cuchero, 1830, *E. Poeppig tab. 59* (Holotype: W); Selvo Ucayali, alt. 1400 m, Nov. 1998, *A.P. Sijm et al. 271298* (MO), C. Luer illustr 19331.
ECUADOR: **Morona-Santiago**: Cordillera del Cutucú, between Mendez and Morona, alt. 950 m, 17 Jan. 1989, *C. Luer, J. Luer, A. Hirtz, P. & A. Jesup 13959* (MO).

Although widely distributed in the Andes and locally abundant, this species is uncommonly encountered. It is closely related to *Pleurothallis hemirhoda* Lindl.; it is not at all related to *P. talpinaria*. The ramicauls are smooth with a purple-dotted sheath below the middle. The stiff, thick leaf is more or less concave or conduplicate at the sessile base. Large, widely expanded, single flowers, sometimes two or three simultaneously, are produced on relatively long, flexible pedicels. The sepals are white, minutely dotted with red along the veins. The narrow dorsal sepal is free; the laterals are connate into a scaphoid synsepal within which lies the dark purple, tubular lip. Low, obtuse, marginal lobes are present above the base. The petals are long-pointed above the basal portion. The flower is very similar to that of *P. hemirhoda*, differing mainly in the lip with the sides revolute into a tube.

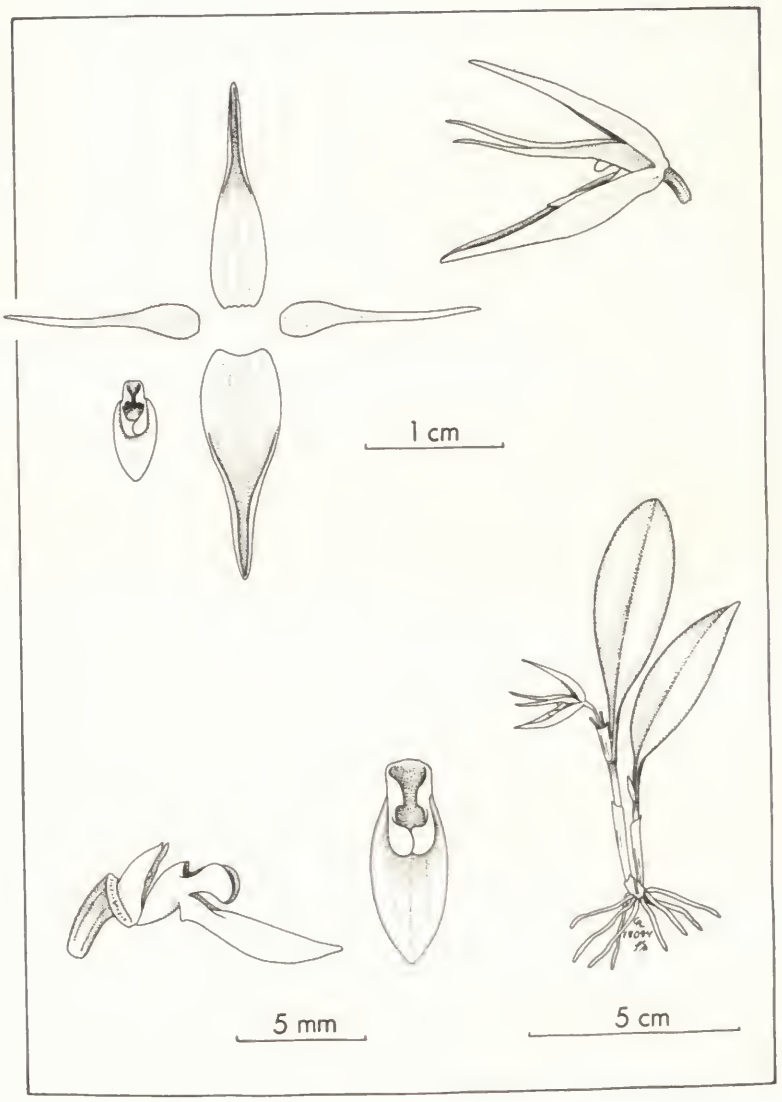


Fig. 1. Pleurothallis fustifera

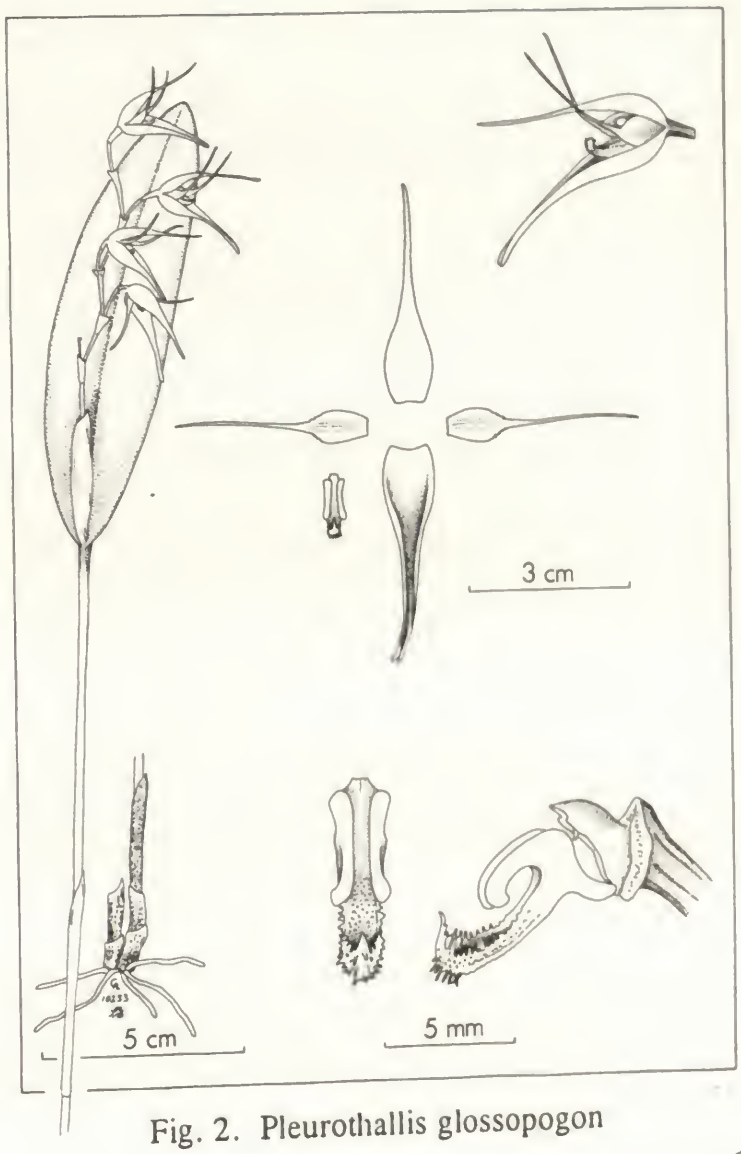


Fig. 2. Pleurothallis glossopogon

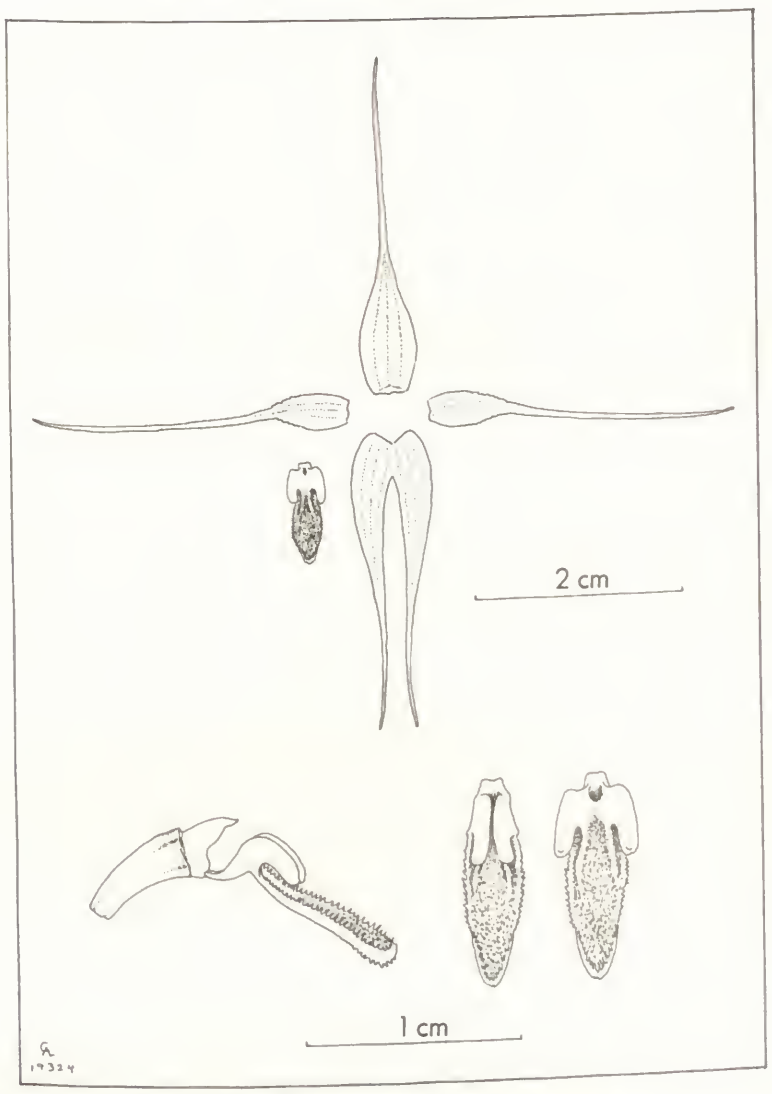


Fig. 3. Pleurothallis glossopogon

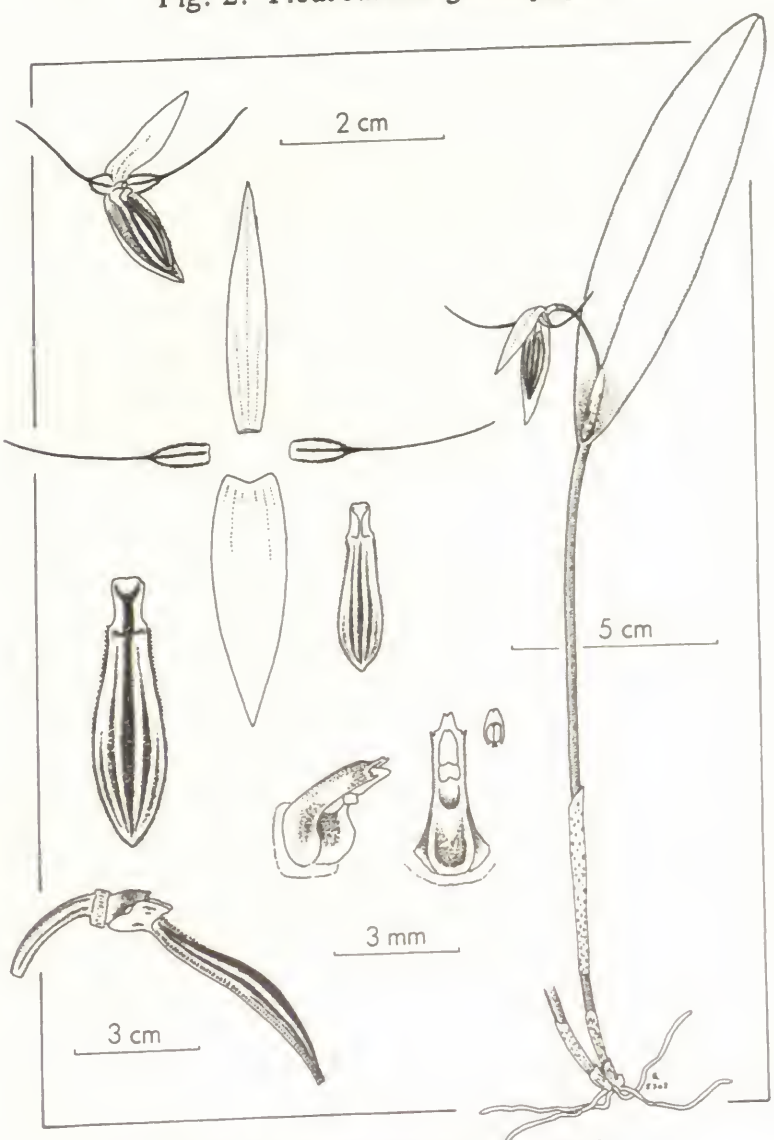


Fig. 4. Pleurothallis hemirhoda

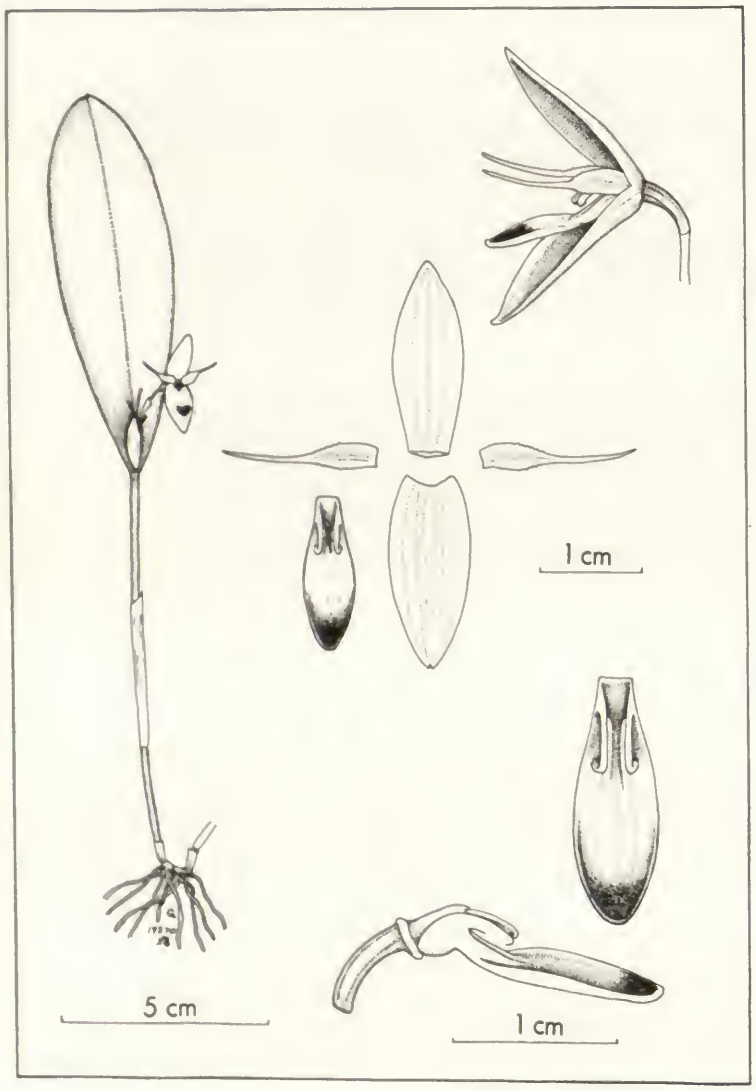


Fig. 5. Pleurothallis medinae

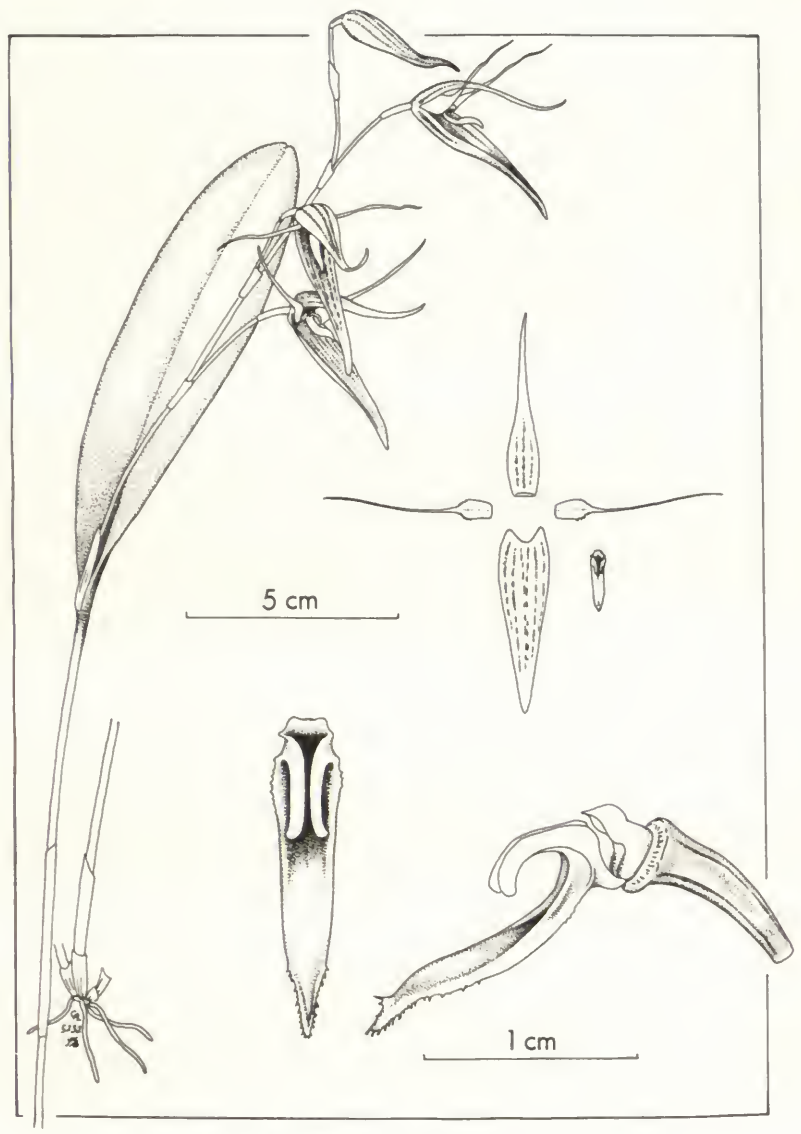


Fig. 6. Pleurothallis sirene

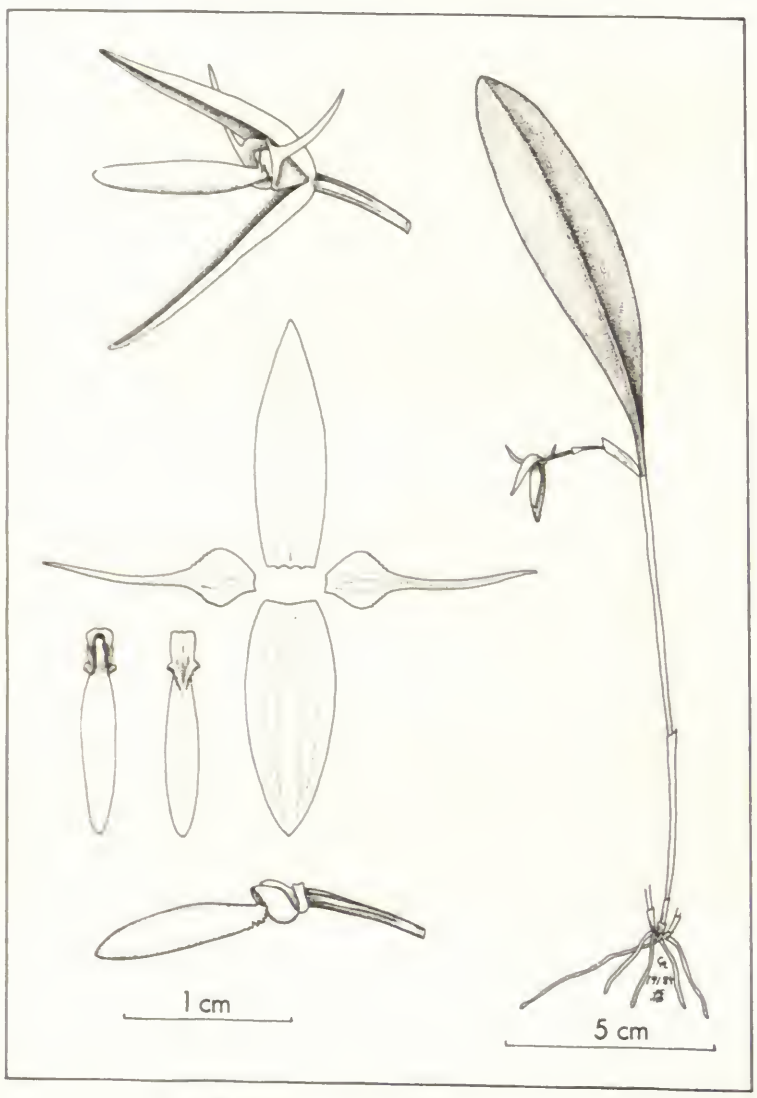


Fig. 7. Pleurothallis talpinarioides

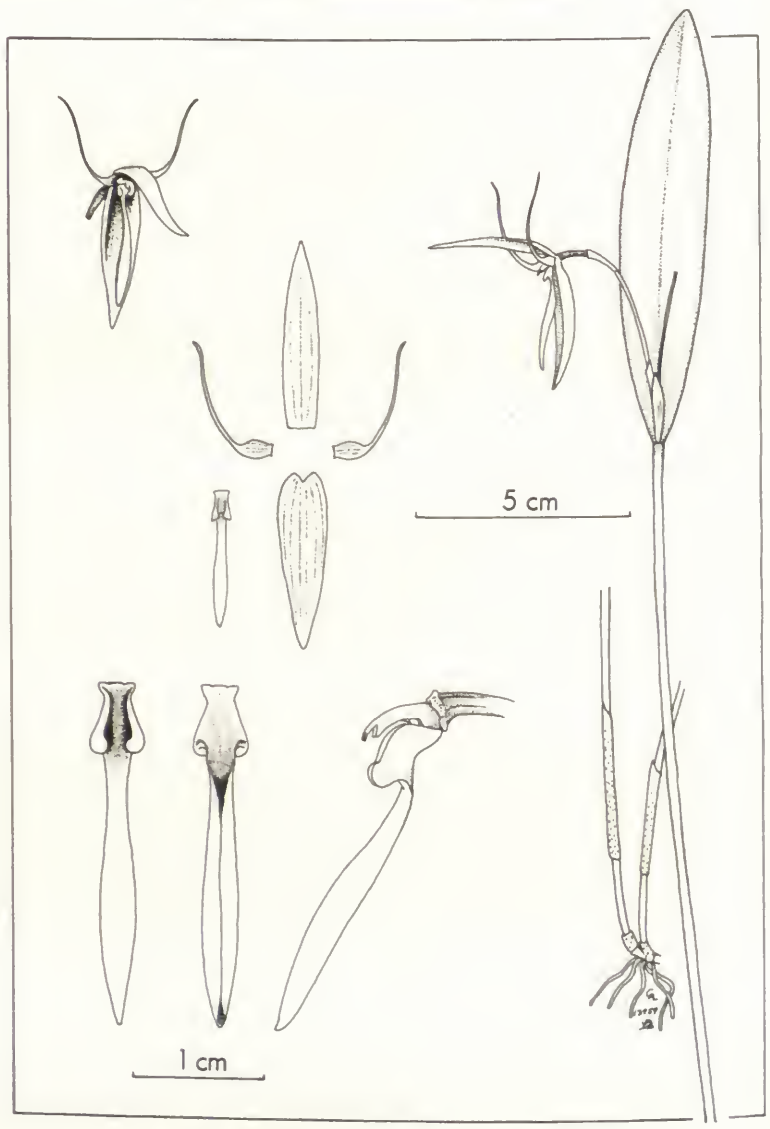


Fig. 8. Pleurothallis tentaculata

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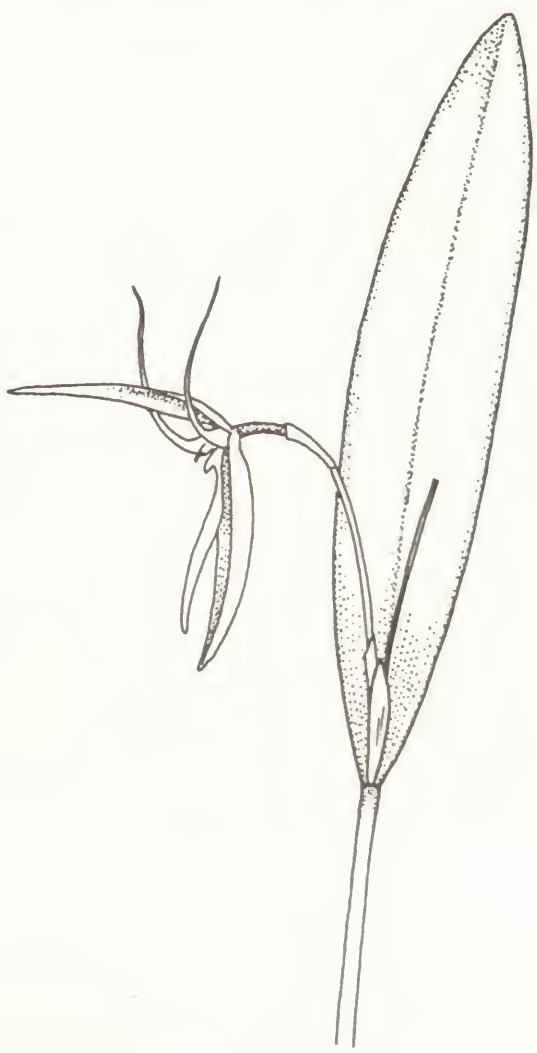
REFERENCES

LINDLEY, J., 1842. *Pleurothallis*. Edwards' Bot. Reg. 28: Misc: 67-84.
_____ 1859. Folia Orchidacea *Pleurothallis* 20, 33.
LUER, C., 1986. *Systematics of Pleurothallis*. Monogr. Syst. Bot. Missouri Bot. Gard. 20: 70-71.
REICHENBACH, H.G.f., 1855. Bonplandia 3: 71.



ADDENDA TO *LEPANTHES, MASDEVALLIA, PLATYSTELE,* PLEUROTHALLIS, RESTREPIOPSIS, SCAPHOSEPALUM *AND* TEAGUEIA

ABSTRACT

The following species of *Lepanthes* Sw., *Masdevallia* Ruiz & Pav., *Platystele* Schltr., *Pleurothallis* R.Br., *Restrepiopsis* Luer, and *Teagueia* Luer are added to the genera already revised in previous numbers of *Icones Pleurothallidinarum*.

New species:
Lepanthes curiosa Luer
Lepanthes ingridiana Luer & Portilla
Lepanthes pendula Luer & Jost
Lepanthes rosoria Luer & Hirtz
Lepanthes tetrachaeta Luer & Jost
Masdevallia burianii Luer & Dalström
Masdevallia calosiphon Luer
Masdevallia formosa Luer & Cloes
Masdevallia immensa Luer
Masdevallia juan-albertoi Luer & Arias
Masdevallia karineae Nauray ex Luer
Masdevallia marizae Luer & Rolando
Masdevallia nikoleana Luer & Portilla
Masdevallia prolixa Luer
Masdevallia venus Luer & Hirtz
Platystele bernoullii Luer
Pleurothallis ankyloglossa Luer & Hirtz
Pleurothallis drewii Luer
Pleurothallis driessenii Luer
Pleurothallis knappii Luer
Pleurothallis lappacea Luer
Pleurothallis possoae Luer
Restrepiopsis niesseniae Luer
Scaphosepalum medinae Luer & Portilla
Teagueia alyssana Luer & Jost
Teagueia cymbisepala Luer & Jost
Teagueia jostii Luer
Teagueia sancheziae Luer & Jost

The following five species raise the number of species of the genus *Lepanthes* known in Ecuador to 320. The figures are numbered in continuation from *Icones* Pleurothallidinarum-*18*.

Lepanthes curiosa Luer, sp. nov.

Ety.: From the Latin *curiosus*, "odd, strange," referring to the appendix.

Planta parva, racemo laxe fractiflexo flexuoso quam folio elliptico obtuso multilongiore, sepalo dorsali late ovato acuminato, lateralibus circiter apicem in synsepalum infra medium concavum supra medium convexum connatis, synsepalo supra medium angustato elongato lateribus recurvis, petalis transverse bilobis pubescentibus, labelli laminis oblongis convexis et appendice subquadrata in sinu suspensa cum processu bifido distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 3-4.5 cm long, enclosed by 7-8 minutely ciliate, lepanthiform sheaths. **Leaf** erect, coriaceous, elliptical, obtuse to rounded at the apex, 22-26 mm long including the petiole 3 mm long, 10-13 mm wide, the base broadly cuneate to rounded, contracted into the petiole. **Inflorescence** a lax, subflexuous, successively several- to many-flowered raceme up to at least 16 cm long, borne by a slender peduncle 3-5 cm long; floral bracts acuminate, 2.5 mm long; pedicels 5-6 mm long, 3 mm long above; ovary 1.75 mm long; **sepals** red-brown with yellow stripes along the veins, entire, the dorsal sepal broadly ovate-triangular, concave, obtuse, acuminate, 12 mm long, 5 mm wide, 3-veined, connate to the lateral sepals for 2.5 mm, the later-

al sepals connate into an ovate synsepal, 14.5 mm long, 8.5 mm wide, 4-veined, concave below the middle, convex near the middle, the apical half acuminate into a pair of 1-1.5 mm wide tails that are connate to within 3 mm of the tips; **petals** yellow, transversely bilobed, pubescent, 1.25 mm long, 4.5 mm wide, the lobes suboblong, obtuse, the upper lobe 1.5 mm long, the lower lobe 3 mm long; **lip** orange-brown, bilaminate, the laminae microscopically pubescent, ciliate at the apex, elliptical, 2 mm long, the bases and apices rounded, the connectives and body broad, connate to the base of the column, the sinus obtuse, appendix suspended by nearly invisible membrane, subquadrate, with a central, forked process; **column** terete, 1.5 mm long, the anther dorsal, the stigma ventral.

ECUADOR: **Zamora-Chinchipe**: Cordillera del Condor, east of Los Encuentros, alt. 1800 m, collected by J. Portilla, cultivated at Gualaceo, Nov. 1999, *A. Hirtz 7125* (Holotype: MO), C. Luer illustr. 19347.

This species is characterized by the small habit with elliptical, obtuse leaves that are far surpassed by successively flowering, flexuous racemes. The dorsal sepal is broadly ovate and acuminate. The lateral sepals are deeply connate into a synsepal that is concave below the middle, convex near the middle, and with the distal third narrowed with revolute sides. A similar configuration is found in *L. katleri* and *L. nycteris*, as well as a few others. The petals are transversely oblong with the lower lobe longer. Suspended from the sinus, the appendix bears upon its anterior surface a minute, forked appendage.

Lepanthes ingridiana Luer, sp. nov.

Ety.: Named for Ingrid Portilla, wife of José Portilla.

Planta mediocris, inflorescentia racemosa folio elliptico acuminato breviore, sepalis angustissime ovatis longissime attenuatis, petalis transverse bilobis glabris, labelli laminis ellipticis glabris, connectivis corporeve latis cum appendice triangulari obtusa biglandulosa distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 3-7 cm long, enclosed by 7-10 ciliate, lepanthiform sheaths. **Leaf** erect, coriaceous, elliptical, subacute, slightly acuminate, 3.5-5.5 cm long including the petiole 3-4 mm long, 1.5-2 cm wide, the base broadly cuneate to rounded, contracted into the petiole. **Inflorescence** a loose, successively few-flowered raceme up to at least 5 mm long, borne by a slender peduncle 1-3 cm long; floral bracts acuminate, 2.5 mm long; pedicels 1.5 mm long; ovary 3 mm long; flowers yellow; **sepals** entire, the dorsal sepal narrowly ovate, acute, long-attenuate, 30 mm long, 4 mm wide, 3-veined, connate to the lateral sepals for 1 mm, the lateral sepals narrowly ovate, oblique, acute, long-attenuate, 32 mm long, 3.5 mm wide, 2-veined, connate 4 mm; **petals** transversely bilobed, glabrous, 1 mm long, 3.75 mm wide, the lobes obliquely triangular, the upper lobe slightly larger; **lip** bilaminate, the laminae elliptical, glabrous, 2 mm long, the bases and apices narrowly rounded, the connectives and body broad, connate to the base of the column, the sinus filled with an obtuse, triangular appendix, biglandular at the apex; **column** terete, 1.5 mm long, the anther dorsal, the stigma ventral.

ECUADOR: **Morona-Santiago**: Guarumales, alt. 1700 m, collected by J. Portilla, cultivated at Gualaceo, Nov. 1999, *A. Hirtz 7126* (Holotype: MO), C. Luer illustr. 19343.

This species is characterized by a medium-sized plant with a rather stout ramicaul clad with ciliate sheaths. The peduncle is shorter than the leaf with a successively few-flowered raceme of slender, yellow flowers with long-attenuated sepals about three centimeters long. The petals are small and the blades of the lip are glabrous. The appendix is obtusely triangular with a minute pair of lobules at the apex.

Lepanthes pendula Luer & Jost, sp. nov.

Ety.: From the Latin *pendulus*, "pendent," referring to the habit.

Planta mediocris pendula, inflorescentia racemosa congestissima folio elliptico acuminato breviore, sepalis late ovatis denticulatis in cupulam semiconnatis, petalis transverse bilobis villosis, labelli laminis longiciliatis ellipticis, connectivis corporeve latis sinu crasso protuberanti subbilobo distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, more or less pendent, 8 cm long, enclosed by 12-14 minutely ciliate, lepanthiform sheaths. **Leaf** pendent, thinly coriaceous, elliptical, acute, acuminate, 7 cm long including the petiole ca. 1 mm long, 2 cm wide, the base cuneate, contracted into the petiole. **Inflorescence** a pendent, densely distichous, successively several-flowered raceme up to at least 5 mm long, suspended along the back surface of the leaf by a slender peduncle 2-2.5

cm long; floral bracts 1 mm long; pedicels 1.5 mm long; ovary 1.5 mm long; **sepals** peach yellow, suffused with orange, crested along the veins externally, the margins minutely denticulate, the dorsal sepal transversely ovate, obtuse, concave, 6 mm long, 8 mm wide expanded, 3-veined, connate to the lateral sepals for 3 mm, the lateral sepals ovate, subacute, connate 2.5 mm into a bifid synsepal, 4 mm long, 8 mm wide together, each 2-veined; **petals** yellow, transversely bilobed, finely long-villous, 0.8 mm long, 2.6 mm wide, the lobes obliquely triangular, the upper lobe slightly larger; **lip** yellow, suffused with salmon, bilaminate, the laminae elliptical, long-ciliate, 2 mm long, the bases and apices narrowly obtuse, the connectives and body broad, connate to the base of the column, the sinus thickened, protuberant, slightly bilobed; **column** terete, 2 mm long, the anther dorsal, the stigma apical.

ECUADOR: **Cotopaxi**: Reserva Otonga, near Las Pampas, alt. 2200 m, Feb. 2000, *L. Jost 1831* (Holotype: MO), C. Luer illustr. 19342.

This species is characterized by a pendent, elliptical, acuminate leaf and a shorter, pendent, congested inflorescence. Two flowers are often produced simultaneously. The broad sepals are connate into a concave, suborbicular flower. The small, transverse petals are long-villous, and the blades of the lip are finely long-ciliate. The body is thick and broad with a broad, protruding sinus in place of an appendix.

Lepanthes rosoria Luer & Hirtz

Ety.: Anagram of the Latin *sororius*, "sisterly," alluding to the similarity to *L. auriculata*.

Species haec *L. auriculatae* Luer affinis, sed petalorum lobis convexis introrsis, labelli laminis reniformibus concavis, et corpore latissimo cum appendice parva pubescenti distinguitur.

Plant large, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 22-28 cm long, enclosed by 12-13 ribbed, glabrous, lepanthiform sheaths. **Leaf** erect, coriaceous, elliptical-ovate, acute, acuminate, 10-11 cm long, 2.5-3 cm wide, the base broadly cuneate or rounded, contracted into a petiole 6-7 mm long. **Inflorescence** a congested, distichous, successively many-flowered raceme up to 20 mm long, borne behind the leaf by a slender peduncle 3-4.5 cm long; floral bracts oblique, 2 mm long; pedicels 1 mm long; ovary 2.5 mm long; **sepals** dark yellow, entire, the dorsal sepal ovate, acute, 6.5 mm long, 4.5 mm wide, 3-veined, connate to the lateral sepals for 1.5 mm, the lateral sepals ovate, oblique, subacute, 7 mm long, 3.5 mm wide, connate 2 mm, 2-veined; **petals** orange, transversely bilobed, glabrous, 2 mm long, 3.5 mm wide, 3-veined, the lobes antrorse, convex, obliquely triangular with rounded ends, the upper lobe twice larger than the lower lobe; **lip** orange, bilaminate, the laminae glabrous, reniform, concave, 1.5 mm long, the connectives broadly oblique, the body broad, connate to the base of the column, the sinus transverse, the appendix small, pubescent; **column** red, stout, terete, 1.5 mm long, the anther dorsal, the stigma apical.

ECUADOR: **Zamora-Chinchipe**: Romerillos by Zamora, alt. 1200 m, cultivated in Quito, Nov. 1999, *A.* Hirtz 6693 *(Holotype: MO), C. Luer illustr. 19350.*

This large species is similar to *L. auriculata* vegetatively and florally, but the flowers differ with broad, convex lobes of the petals that bend inward instead of cuneate lobes that bend outward. The blades of the lip are longitudinally concave, but not deeply and broadly so. The body is also broad with a small appendix, but it is not protruding.

Lepanthes tetrachaeta Luer & Jost, sp. nov.

Ety.: From the Greek *tetrachaete*, "four hairs," referring to the tails of the petals and lip.

Species haec *L. nematostele* Luer & Dalström persimilis, sed labelli laminis glabris longicaudatis et appendice tenuissime membranacea differt.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 2.5-4.5 cm long, enclosed by 7-8 long-ciliate-pubescent, lepanthiform sheaths. **Leaf** erect, coriaceous, broadly elliptical-suborbicular, obtuse to rounded at the apex, 11-15 mm long including the petiole ca. 1 mm long, 8-10 mm wide, the base round, contracted into the petiole. **Inflorescence** an erect, loose, successively several-flowered raceme up to 4 cm long including the slender peduncle 2-2.5 cm long; floral bract ciliate, 1.5 mm long; pedicel 2 mm long; ovary 3 mm long; flowers dark red; **sepals** concave, crested along the veins externally, the margins erose, the dorsal sepal ovoid, acute, 5.5 mm long, 2.5 mm wide unexpanded, the lateral sepals connate 4 mm into an ovoid synsepal similar to the dorsal sepal, 5 mm long, 3.75 mm wide

expanded, the apices subacute, free for 1 mm; **petals** transversely bilobed, long-villous on the back surface, 1.25 mm long, 5 mm wide, the upper lobe short, semicircular, the lower lobe triangular, acute, long-acuminate; **lip** bilaminate, the laminae glabrous, thin, oblong, 2 mm long, the bases subacutely angled, the apices acute, acuminate into slender tails 1 mm long, the connectives and body broad, connate to the column near the apex, the appendix broadly triangular, concave, thinly membranous, ciliate; **column** proportionately very long and very slender, 2 mm long, the anther dorsal, the stigma ventral.

ECUADOR: **Napo**: near Volcán Reventador, alt. 1900 m, 14 Dec. 1999, *L. Jost & A. Souther 1806* (Holotype: MO), C. Luer illustr. 19341.

This strange species from northcentral Ecuador is very similar to *L. nematostele* from northernmost Ecuador in every aspect except the lip which differs markedly. The blades of the lip are thin and narrowly oblong, not adherent over the column, and the apices are acuminate into equally long, slender tails, not broadly rounded and ciliate. The blades are very similar to those of *L. ictalurus* Luer. The appendix is a thin, concave, ciliated, netlike membrane formed from the lower margins of the blades.

Masdevallia burianii Luer & Dalström, sp. nov.

Ety.: Named for Rick Burian, of Portland, OR, co-collector of this species.

Species haec *M. calocodon* Luer affinis, sed foliis acutis longissime petiolatis, floribus minoribus, petalorum processu basali crasso incurvato, et labello tricarinato differt.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls black, slender, erect, 2.5-3.5 cm long, enclosed by a loose, tubular sheath and another at the base. **Leaf** erect, coriaceous, long-petiolate, 9-14 cm long including the black petiole 4-5 cm long, the blade elliptical, acute to subacute, 1.5-2 cm wide, cuneate below into the petiole. **Inflorescence** a solitary flower borne by a peduncle 9 cm long, with a sheath above the base, from low on the ramicaul; floral bract 12 mm long; pedicel 20 mm long; ovary 5 mm long; **sepals** white, spotted with purple, subcarinate, glabrous externally, shortly pubescent within, the dorsal sepal oblong, concave, 13 mm long, 10 mm wide, 3-veined, the apex obtuse, contracted into a slender tail 4-5 cm long, the lateral sepals oblong-ovate, obtuse, 15 mm long, 9 mm wide, 3-veined, connate ca. 5 mm over a transverse convexity, the apices contracted into slender tails similar to that of the dorsal sepal; **petals** cartilaginous, more or less oblong, obliquely acute at the apex, the labellar margin callous below the middle and ending in a thick, obtuse, incurved process, 8 mm long, 2.5 mm wide, 1-veined; **lip** oblong, arcuate below the middle, 7.5 mm long, 4 mm wide, the apex broadly truncate, the disc with a pair of longitudinal calli from base to apex, and a midline callous above the middle, the base cordate, thickened beneath and loosely hinged to the column-foot; **column** stout, 6 mm long, the foot equally long with an incurved extension, the anther and stigma ventral.

BOLIVIA: **Cochabamba**: road to Tablas, alt. 1500 m, Dec. 1999, *S. Dalström, J. Sönnemark & R. Burian 2415 (Holotype: MO; Isotype:); C. Luer illustr. 19280.*

Intermixed with numerous plants of *M. calocodon* Luer, several plants of this closely allied *M. burianii* were found. The leaves are long-petiolate and the flowers are smaller. The pubescence within the flowers varies in length and color, from purple to white. The angle between the lateral sepals is subacute to obtuse, while in *M. calocodon* the angle is transverse. The basal process of the petals is thick, obtuse, retrorse and incurved in *M. burianii*, while in *M. calocodon*, it is small and descending. The lip of *M. burianii* is oblong and distinctly tricallous.

Masdevallia burianii is also similar to *M. tinekae* Luer & Vásquez which also occurs nearby, but the mentum with the column-foot is larger in the latter and the process of the petal is slender and antrorse.

Masdevallia calosiphon Luer, sp. nov.

Ety: From the Greek *calosiphon*, "a beautiful tube," referring to the sepaline tube.

Species haec *M. fuchsii* Luer affinis, sed flore minore, tubo sepalorum graciliore pallido aurantiaco cum nervis fusco aurantiacis, et petalorum callo sine processo crasso retrorso differt.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, erect, 1.5-2 cm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 7-11 cm long including the petiole 2-4 cm long, the blade narrowly elliptical, acute to subacute, 1-1.5 cm wide, the base narrowly cuneate into the petiole. **Inflorescence** a solitary flower, borne by a slender, erect peduncle 4-6 cm long, with a bract above the base, from low on the ramicaul; floral bract 9-10 mm long; pedicel 15-20 mm long; ovary 6 mm long; **sepals** light orange, striped along the veins in darker orange and lightly veined red, pubescent within near the apex, glabrous externally, the dorsal sepal narrowly linear-obovate, concave, 21 mm long, 7 mm wide expanded at the orifice of the tube, connate to the lateral sepals for 16 mm to form a suberect, sepaline tube, constricted in the distal quarter, the apex broadly obtuse, contracted into an erect, orange tail 14 mm long, slightly swollen in the middle third, the lateral sepals 20 mm long, connate 15 mm, 5 mm wide beyond the tube, the obtuse apices contracted into tails similar to that of the dorsal sepal; **petals** yellowish white, oblong, 6.5 mm long, 2 mm wide, the apex obtuse, obscurely lobed, with a longitudinal carina along the labellar margin terminating at the base; **lip** white, elliptical-obovate, 4.5 mm long, 2.3 mm wide, the sides slightly dilated above the middle, the apex narrowly obtuse, the disc shallowly sulcate between a pair of low, longitudinal calli, the base subcordate, hinged beneath; **column** semiterete, white with thin, purple margins, 4 mm long, the foot 1 mm long, with a slender, incurved extension.

PERU: **Huánuco**: cloud forest between Tingo Maria and Pucallpa, by an unknown collector, cultivated at Colomborquídeas near Medellín, Colombia, 20 Apr. 1988, *C. Luer 16707* (Holotype: MO).

This species is apparently endemic in one area of central Peru where it is occasionally collected. The watercolor painting of *M. calosiphon* by Frl. Trechslin was misidentified in *Thesaurus Masdevalliarum* 7: 2, 1986, as *M. fuchsii*. Being unfamiliar with the true *M. fuchsii*, Königer redescribed a subsequent collection of *M.* fuchsii *as* M. saulii.

The two species are closely related, but readily separated by the smaller, more slender, proportionately longer, orange-striped, sepaline tube of *M. calosiphon*. The terminal expanse of the ostium of the tube of the latter is about one-third the length of the tube, while the broadly expanded ostium of *M. fuchsii* is about half the length of the tube that is white and only lightly suffused with orange at the base.

The callus of the petal of *M. calosiphon* is thin and ends obtusely at the base, while the callus of *M. fuchsii* is thick and ends in a prominent, incurved process. The lips are simple. The distorted apex illustrated for *M. saulii* is probably an artifact.

Masdevallia formosa Luer & Cloes, sp. nov.

Ety: From the Latin *formosus*, "handsome," referring to the pleasing appearance of the plant.

Inter species subsectionis *Oscillantes*, sepalo dorsali supra medium cucullato cum cauda acute reflexa, petalis latis subtruncatis processu ad basim triangulari retrorso, et labello trilobo, lobis supra medium obtusis antrorsis distinguitur.

Plant medium in size for the subsection, epiphytic, caespitose; roots coarse. Ramicauls blackish, stout, erect, 1.5 cm long, enclosed by 2-3 dark, tubular sheaths. **Leaf** erect, coriaceous, petiolate, the blade elliptical, obtuse, 3.5 cm long, 2 cm wide, cuneate below and abruptly contracted into the petiole 1.2-1.5 cm long. **Inflorescence** a solitary flower, borne by a slender, erect peduncle 3 cm long, with a bract above the base, from low on the ramicaul; floral bract 8 mm long; pedicel 11 mm long; ovary 7 mm long; **sepals** pale yellow-orange, the dorsal sepal erect, subquadrate, 15 mm long, 15 mm wide, connate to the lateral sepals for 4 mm to form a shallow, gaping cup, concave and cucullate above the middle, the apex obtuse, decurved, abruptly contracted into an acutely reflexed tail 33 mm long, the lateral sepals oblong, connate 13 mm into a subquadrate lamina, 15 mm long, 20 mm wide, the transverse apices contracted into tails 30 mm long, similar to that of the dorsal sepal; **petals** pale yellow, broadly oblong, 4 mm long, 1.75 mm wide, the apex subtruncate, obscurely lobed, the labellar margin curved with a marginal callus terminating into a thick, retrorse, triangular process; **lip** light orange-brown, with brown dots, oblong-trilobed, the apical lobe subquadrate with a decurved, midline callus, the lateral, winglike lobes above the middle, obtuse, antrorse, microscopically erose, 4 mm long, 2.75 mm wide across the wings, the disc elevated from the base, becoming a pair of longitudinal calli on the middle third, the base concave beneath, hinged from within; **column** yellow, semiterete, proportionately large, 5 mm long, 2 mm wide, the foot thick, 1 mm long, with an incurved extension.

PERU: **Amazonas**: between Pomacochas and Río Ripa, collected and cultivated in Hasselt, Belgium, by *P. Cloes 200 104* (Holotype: MO).

Among the species of subsection *Oscillantes*, this species is distinguished by the pale peach-colored flower with an erect dorsal sepal that is hooded or concave above the middle with the tail acutely reflexed. The lateral sepals are connate into a broad, suborbicular lamina that is abruptly contracted into a pair of descending tails. The petals, column and lip are exposed and erect in the center of the flower. The basal process of the petals is obliquely triangular and retrorse. The lip is trilobed above the middle, with the lobes wing-like, broadly triangular, obtuse and antrorse. The disc is convex through the basal two-thirds, and deeply concave beneath,

Masdevallia immensa Luer, sp. nov.

Ety: From the Latin *immensus*, "immense," referring to the huge size of the flower.

Inter species subsectionis *Caudatae*, habitu floreque grandissimis, sepalis eburneis longicaudatis, petalorum callo crasso, et labello ovato cum callo parvo distinguitur.

Plant large for the subsection, epiphytic, caespitose; roots coarse. Ramicauls blackish, slender, erect, 1.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, petiolate, 8-10 cm long including the petiole 2-3 cm long, the blade narrowly elliptical, obtuse, 2.5-3 cm wide, the base cuneate into the petiole. **Inflorescence** a solitary flower, borne by a slender, erect peduncle 10-13 cm long, with a bract above the base, from low on the ramicaul; floral bract 15 mm long; pedicel 20 mm long; ovary 10 mm long; **sepals** ivory white to milky white, lightly suffused with pale brown above the base, cellular-glandular within, glabrous externally, the dorsal sepal elliptical-obovate, concave, 31 mm long, 18 mm wide, connate to the lateral sepals for 5 mm to form a shallow, gaping cup, the apex broadly rounded, abruptly contracted into an erect, light yellow tail 75 mm long, the lateral sepals oblong, 27 mm long, 15 mm wide, connate 4 mm, the obtuse apices contracted into tails similar to that of the dorsal sepal; **petals** white, oblong, 7 mm long, 3 mm wide, the apex truncate-tridentate, with a thick, longitudinal carina along the labellar margin terminating in a thick, retrorse, rounded process beyond the base; **lip** white, elliptical-ovate, 7 mm long, 3.75 mm wide, the apex rounded with a small, midline, purple callus, the disc shallowly sulcate between a pair of low, longitudinal calli, the base subcordate, hinged beneath; **column** semiterete, white, 5 mm long, the foot 4 mm long, with a slender, incurved extension.

PERU: **Huánuco**: cloud forest between Tingo Maria and Pucallpa, La Divisoria, alt. 1800 m, collected July 1998, cultivated at Hasselt, Belgium, *Patrick Cloes 990 214* (Holotype: MO); C. Luer illustr. 19056.

This species is one of the largest known in the subsection *Caudatae*. Although it is closely related to *M. aops*, the huge size immediately distinguishes it. Besides being larger, the leaves are elliptical, while those of *M. aops* are broadly elliptical to nearly suborbicular. Although the flowers answer nearly the same description except for dimensions, the appearance is distinctive. The dorsal sepal of both species is concave, but that of *M. aops* is deeply concave only above the middle. The lateral sepals of both species are more or less reflexed, but the angle between them is obtuse in *M. aops* and acute in *M. immensa*.

Masdevallia juan-albertoi Luer & Arias, sp. nov.

Ety.: Named for Juan Alberto Arias, son of Manuel Arias of Lima, Peru.

Inter species subsectionis *Masdevalliae*, habitu et flore grandibus, pedunculo folio longipetiolato breviore, sepalis bruneopunctatis in tubum campanuliformem cum mento connatis, petalorum callo crassimimo retrorso, labello grandi supra medium angustato apice recurvato distinguitur.

Plant large, epiphytic, caespitose; roots fleshy. Ramicauls stout, erect, 5-7 cm long, enclosed by a loose, tubular sheath and 2 others at the base. **Leaf** erect, coriaceous, long-petiolate, 13-14.5 cm long including the petiole 4-4.5 cm long, the blade elliptical, subacute, 2-3 cm wide, cuneate below into the petiole. **Inflorescence** a solitary flower borne by a peduncle 10-14 cm long, with a sheath above the base, from low on the ramicaul; floral bract 12 mm long; pedicel 18-19 mm long; ovary 7 mm long; **sepals** tan, diffusely dotted and suffused with brown, glabrous externally, shortly pubescent within above the middle, the dorsal sepal obovate, concave, 26 mm long, 23 mm wide, 3-veined, connate 14 mm into a gaping sepaline tube, the apex obtuse to rounded, contracted into a slender tail 3.5 cm long, the lateral sepals oblong, connate 12 mm into a broad synsepal, 25 mm long, 34 mm wide, 6-veined, with a deep

mentum below the column-foot, the apices obtuse, contracted into slender tails 3 cm long; **petals** cartilaginous, more or less oblong, obliquely obtuse at the apex, the labellar margin callous, ending in a thick, obtuse, retrorse process, 12 mm long, 5 mm wide, 1-veined; **lip** suboblong, 14 mm long expanded, 6.5 mm wide, the apex broadly truncate with the acute tip acutely recurved, the disc featureless, the base truncate, thickened beneath and loosely hinged to the extension of the column-foot; **column** stout, 9 mm long, the foot equally long with an incurved extension, the anther and stigma ventral.

PERU: **Ayacucho**: Huanta, Chuyas, alt. 2300 m, collected by Silvano Flores, cultivated in Lima, Oct. 1999, by *M. Arias s.n.* (Holotype: MO), C. Luer illustr. 19360.

Among the species of subsection *Masdevallia*, this species is another related to the variable *M. laevis*, which had been identified in *Thesaurus Masdevalliarum*-15 as *M. affinis*, one of its synonyms. *Masdevallia juan-albertoi* is distinguished by the large habit and large, brown-flecked flower with a prominent mentum. The petals are large with a thick, retrorse process at the base. The lip is also large with a constriction below the apex.

Masdevallia karineae Nauray ex Luer, sp. nov.

Ety.: Named for Karine, daughter of Abel Rodriguez, of Cuzco, Peru.

Planta mediocris, foliis anguste elliptis longipetiolatis pedunculo multilongioribus, flore heterochromo illo *M. tinekeae* Luer & Vásquez similis, sepalis roseis infra medium intense purpureo maculatis cum area magna aurea extus, sepalis caudatis lateralibus ad medium connatis cum mentum rotundum, petalis cum callo supra basim uncinato, et labello oblongo cum apice recurvo distinguitur.

Plant medium in size, epiphytic, caespitose; roots stout. Ramicauls slender, erect, 2.5-3.5 cm long, enclosed by a loose, tubular sheath and another at the base. **Leaf** erect, coriaceous, long-petiolate, 12.5 cm long including the petiole ca. 3 cm long, the blade narrowly elliptical, subacute, 2 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a solitary flower borne by a peduncle 5.5 cm long, with a sheath above the base, from low on the ramicaul; floral bract 8 mm long; pedicel 14 mm long; ovary 5 mm long, green, spotted with purple; **sepals** rosy white, intensely spotted with purple below the middle within, glabrous externally with a large orange area externally below the middle, with purple hairs near the margin, either spiculate in rosettes or clubbed, the dorsal sepal obovate, 13 mm long, 8 mm wide, 3-veined, the apex round, contracted into an erect, green, purple-spotted tail 16-18 mm long, connate to the lateral sepals for 7 mm, the lateral sepals oblong-ovate, oblique, obtuse, 14 mm long, 8 mm wide, 3-veined, connate 7 mm, the apices contracted into reflexed tails similar to that of the dorsal sepal; **petals** white, cartilaginous, more or less oblong, minutely sublubulate at the truncate apex, the labellar margin with a longitudinal callous terminating in a retrorse, uncinate process at the base, 6.5 mm long, 2.5-4 mm wide, 1-veined; **lip** oblong, 7.5 mm long, 4 mm wide, the apex obtuse but acutely recurved, the disc shallowly sulcate, the base truncate, thickened beneath, hinged to the column-foot; **column** stout, 6 mm long, the foot equally long with an incurved extension, the anther and stigma ventral.

PERU: **Cuzco**: Urubamba, Wiñay Wayna, alt. 2700 m, without date, *W. Nauray 408* (Holotype: CUZ); same area, collected I. Rolando, and A. Alfieri, Oct. 1999, flowered in cultivation by A. Alfieri in Wilmington, DE, 19 Jan. 2000, *C. Luer 19311* (Paratype: MO).

This species was first collected by William Nauray and Abel Rodriquez on Wiñay Wayna peak opposite Machu Picchu. It grows terrestrially and is locally abundant. Although the flower is small for subsection *Masdevallia*, it is intensely colored. It is borne on a peduncle about as long as the long petiole of the leaf. The sepals are rosy white and connate about midway into a broad sepaline tube with a broadly rounded mentum. A large, orange area is present below the middle externally. Within, the sepals are pubescent, and intensely and irregularly spotted with purple below the middle. Above the middle and near the margins, four kinds of purple hairs are present. Some are protruding, glandular cells; some are erect, slender hairs; sometimes the hairs are arranged in rosettes; and sometimes the hairs are markedly clubbed. An uncinate callus is present at the base of the petals. The lip is simply oblong with an acutely recurved apex.

Masdevallia marizae Luer & Rolando, sp. nov.

Ety.: Named for Mariza Rolando, wife of Isaías Rolando, of Lima, Peru.

Species haec *M. decumanae* Königer affinis, sed habitu majore, pedunculo multilongiore et labello ovoideo convexo differt.

Plant medium in size, epiphytic, caespitose; roots stout. Ramicauls stout, erect, 2.5-3.5 cm long, enclosed by a loose, tubular sheath and another 1-2 sheaths at the base. **Leaf** erect, coriaceous, long-petiolate, 8-10 cm long including the petiole 1.5-2 cm long, the blade elliptical, subacute, 3 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a solitary flower borne by a peduncle 12 cm long, with a sheath above the base, from low on the ramicaul; floral bract 10 mm long; pedicel 15 mm long; ovary 6 mm long; **sepals** pale rose, diffusely and intensely dotted with purple, the dots becoming minute toward the apices, the dorsal sepal ovate, concave, 14 mm long, 12 mm wide, 3-veined, the apex round, contracted into a yellow-green, forwardly directed tail 4.5 cm long, connate to the lateral sepals for 6 mm, the lateral sepals spreading, oblong, oblique, obtuse, 28 mm long, 15 mm wide, 3-veined, connate 12 mm, the apices contracted into tails 3-4 cm long, similar to that of the dorsal sepal; **petals** white, cartilaginous, more or less oblong, obtuse, shallowly retuse, the labellar margin with a longitudinal callous terminating in a retrorse process at the base, 4.5 mm long, 1.75 mm wide, 1-veined; **lip** rose, diffusely dotted with purple, ovate-ovoid, convex, 4 mm long, 3 mm wide, the apex obtuse, the disc shallowly sulcate, the base rounded, thickened beneath, hinged to the column-foot; **column** white, stout, 4 mm long, the foot 2 mm long with an incurved extension, the anther and stigma ventral.

PERU: **Cuzco**: Urubamba, collected I. Rolando, and A. Alfieri, Oct. 1999, flowered in cultivation by M. Rau in Wilmington, DE, 17 Mar. 2000, *C. Luer 19281* (Holotype: MO); lower elevations of the Historic Sanctuary of Machu Picchu, Jan. 2000, *Norma Salinas s.n.* (MO).

This species appears similar to *M. decumana*, but it is readily distinguished from the latter by the larger habit and long peduncle that extends the flower beyond the tips of the leaves. The flowers are similar with a dorsal sepal about half the length of broad lateral sepals. The sepals are similarly diffusely dotted with purple, but they are not as widely expanded as in *M. decumana*. Instead of subquadrate and flat, the lip of *M. merizae* is ovoid and convex.

Masdevallia nikoleana Luer & Portilla, sp. nov.

Ety: Named for Nikole, daughter of José Portilla, of Gualaceo, Ecuador.

Species haec *M. ortalis* Luer similis, sed foliis late ellipticis obtusis, petalis minoribus acutis cum ala rotunda, labello arcuato et columna majore profunde concava differt.

Plant medium in size for the subsection, epiphytic, caespitose; roots coarse. Ramicauls blackish, stout, erect, 1.5-2.5 cm long, enclosed by 2-3 dark, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 2.5-5 cm long including the petiole 1-1.5 cm long, the blade elliptical, obtuse, 1.5-2 cm wide, the base cuneate into the petiole. **Inflorescence** a solitary flower, borne by a slender, erect peduncle 2-2.5 cm long, with a bract above the base, from low on the ramicaul; floral bract 9 mm long; pedicel 10 mm long; ovary 5 mm long; **sepals** orange to yellow-orange, marked with red at the base, cellular-glandular within, glabrous externally, the dorsal sepal verrucose along the thickened, apical margin, broadly elliptical, concave, 13 mm long, 13 mm wide, connate to the lateral sepals for 4 mm to form a shallow, gaping cup, the apex broadly rounded, abruptly contracted into a slender, reflexed, tail 28 mm long, the lateral sepals oblong, oblique, 15 mm long, 13 mm wide, connate 9 mm, the transverse apices contracted into tails 20 mm long, similar to that of the dorsal sepal; **petals** white, elliptical-oblong, 2.75 mm long, 1.25 mm wide, the apex acute, with a thin, broadly rounded, fin-like carina on the margin of the middle third, and an acute, retrorse process at the base; **lip** yellow, oblong-pandurate, arcuate, with broad, thin wings on the middle third, minutely erose, 3.5 mm long, 2 mm wide across the wings, the apex red, thickened beyond a constriction, with the tip verrucose, revolute, the disc with a tall, curved callus on the basal third, concave beneath, hinged from within; **column** yellow, semiterete, deeply concave ventrally with thin, dilated margins, 4 mm long, the foot scarcely 1 mm long, with a short, incurved extension.

ECUADOR: **Zamora-Chinchipe**: above Zumba, alt. 1800 m, collected in 1998, cultivated at Ecuagenera, Gualaceo, Ecuador, *J. Portilla 1120* (Holotype: MO); C. Luer illustr. 19368.
PERU: **Amazonas**: obtained from M. Arias, cultivated at Ecuagenera, Gualaceo, Ecuador, *J. Portilla* 1114, 1119 *(MO)*.

Although this species has been been found recently in both southernmost Ecuador and neighboring Peru, it had not been recognized previously. It is most similar to *M. ortalis* Luer. Among the members of the subsection *Oscillantes*, both species are characterized by an orange flower marked with red, especially at the base. The sepals are broad and obtuse with the dorsal sepal concave. The petals of both species have an acute, retrorse process at the base, but the tip of the petal of *M. nikoleana* is acute instead of tridentate, and the marginal wing is broadly rounded instead of acute. The lip is tall-convex below the middle and sloping forward, broadly winged, and constricted below the thick, recurved apex.

Masdevallia prolixa Luer, sp. nov.

Ety.: From the Latin *prolixus*, "drawn out," referring to the elongated petiole, peduncle, pedicel, and sepaline tails.

Inter species sectionis *Alaticaules*, pedunculo longissimo, racemo laxissimo, pedicilis lonigissimis, sepalis longicaudatis in cupulam brevem connatis, synsepalo late expanso, labelli epichilio angusto apiculato marginibus revolutis verrucosis distinguitur.

Plant large, epiphytic, caespitose; roots thick, fleshy. Ramicauls slender, erect, 3-4 cm long, with a 1-2 tubular sheaths at the base. **Leaf** erect, coriaceous, 16 cm long including a slender petiole 4-5 cm long, the blade narrowly elliptical, subacute, 2 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a solitary flower borne successively in a distantly few-flowered raceme a slender peduncle up to 26 cm long, with a tubular sheath at the base, from the base of the ramicaul; floral bracts thin, 2.5 cm apart, 1.5 cm long; pedicel 4-4.5 cm long; ovary green, 6 mm long; **sepals** glabrous externally, microscopically papular-pubescent within, the dorsal sepal yellow, ovate, acute, long-attenuate, 7 cm long including the forwardly directed tail, 7 mm wide, 3-veined, connate to the lateral sepals for 4 mm into a short, cylindrical, sepaline cup, the lateral sepals connate 25 mm into a broadly oblong, bifid synsepal, 30 mm long, 18 mm wide, 6-veined, with the apices acute, contracted into slender, yellow tails 4 cm long; **petals** yellowish white, cartilaginous, more or less oblong-triangular, acute at the apex, the labellar margin thick with a longitudinal callous terminating in a broad, rounded base, 6 mm long, 1.5 mm wide, 2.5 mm wide at the base, 1-veined; **lip** dark purple, with marginal folds thin, near the middle, 6.5 mm long, the epichile longitudinally channeled, 1.25 mm wide, with the sides revolute and verrucose, the apex long-apiculate, the hypochile oblong, 2 mm wide, the base truncate, flat on the end, thickened beneath, hinged to the column-foot; **column** semiterete, 5.5 mm long, the foot 3 mm long with a short, incurved extension, the anther and stigma ventral.

PERU: **Huánuco**; without specific locality, alt. 2500 m, obtained from M. Arias by J. Portilla, cultivated at Gualaceo, Ecuador, Jan. 2000, *C. Luer 19363* (Holotype: MO).

This species, apparently endemic in central Peru, is distinguished by the long, slender peduncle, and a long-pedicellate, remotely, few-flowered raceme. The dorsal sepal is yellow with a long-attenuated tail. Beyond the short sepaline tube, the lateral sepals are connate into a broad, bifid lamina with narrow tails. The petals are acute with a broad, basal callus. The hypochile of the lip is oblong, about as long as the epichile but wider, and the epichile is channeled and narrow with revolute, verrucose sides. The apex is acuminate-apiculate.

Masdevallia venus Luer & Hirtz, sp. nov.

Ety.: Named for Venus, goddess of love and beauty.

Inter species sectionis *Alaticaules*, pedunculo crasso longissimo, racemo congesto, sepalis in cupulam ringentem connatis, labelli hypochilio oblongo quam epichilio longiore distinguitur.

Plant medium in size, epiphytic, caespitose; roots fleshy. Ramicauls stout, erect, 2-2.5 cm long, with a loose, tubular sheath at the base. **Leaf** erect, coriaceous, 10 cm long including an indistinct petiole 2-3 cm long, the blade narrowly elliptical, subacute, 2 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a solitary flower borne successively in a congested raceme by a stout peduncle up to 26 cm long, with a tubular sheath at the base, from the base of the ramicaul; floral bracts thin, imbricating, 15-20 mm long; pedicel 20-25 mm long; ovary green, 7 mm long; **sepals** yellow but suffused with red-brown mostly above the middle, glabrous externally, with a small dark spot at the base, microscopically pubescent within, the dorsal sepal ovate, 45 mm long including the tail, 16 mm wide, 3-veined, the apex long-acuminate in a forwardly directed, yellow tail, connate to the lateral sepals for 9

mm into a shallow, gaping sepaline cup, the lateral sepals 23 mm long, connate 17 mm into a broadly expanded, ovate synsepal, 30 mm wide, 6-veined, with the apices obtuse, contracted into slender, yellow tails 16 mm long; **petals** yellowish white, cartilaginous, more or less oblong, minutely tridentate at the truncate apex, with both halves callous, the labellar margin thick with a longitudinal callous terminating in a low, rounded callus at the base, 6.5 mm long, 2.5 mm wide, 1-veined; **lip** dark purple, subpandurate, with thick marginal folds above the middle, 7.5 mm long, 3 mm wide, the epichile minutely verrucose, with the sides recurved and undulate, apex recurved, long-apiculate, the hypochile oblong, twice longer than the epichile, the base truncate, thickened beneath, hinged to the column-foot; **column** semiterete, 6 mm long, the foot 5 mm long with an incurved extension, the anther and stigma ventral.

ECUADOR: Without locality, collected and cultivated in Quito by *A. Hirtz 7110* (Holotype: MO), C. Luer illustr. 19323.

This lovely species is cultivated in Quito, Ecuador, by Alexander Hirtz. Unfortunately, the collection data have disappeared. Among the members of section *Alaticaules*, this species is distinguished by the long, stout peduncle, and a congested, long-pedicellate, successively flowered raceme. The sepals are yellow but generously suffused with red-brown. They are connate into a shallow, gaping cup with the synsepal broadly expanded. The petals are oblong and tridentate. The hypochile of the lip is oblong, twice longer than the epichile with revolute margins and long-apiculate apex.

The following species of *Platystele* brings the total number known and illustrated in *Icones Pleurothallidinarum* to 93.

Platystele bernoullii Luer, sp. nov.

Ety.: Named for Carl Gustav Bernoulli, collector of this species.

Planta minuta breviter repens, pedunculo elongato folio elliptico multilongiore, racemo subcongesto longipedicellato, sepalis ovatis obtusis, petalis oblongis obtusis et labello ovato obtuso concavo.

Plant very small, epiphytic, shortly repent, the rhizome 1-2 mm long between ramicauls; roots proportionately thick. Ramicauls erect, 1-2 mm long, enclosed by a tubular sheath. **Leaf** erect, coriaceous, elliptical, subacute, 5-6 mm long, 2-3 mm wide, cuneate below into the subsessile base. **Inflorescence** an erect, subcongested, successively few- to many-flowered raceme to 12 cm long, borne by a filiform peduncle 18-25 mm long, laterally from the ramicaul; floral bracts oblique, acute, 0.5 mm long; pedicels 2-3 mm long; ovary 0.5 mm long; **sepals** appear to have been purplish, glabrous, the dorsal sepal ovate, concave, subacute to obtuse, 1 mm long, 0.6 mm wide, vein not visible, the lateral sepals ovate, subacute to obtuse, 1 mm long, 0.75 mm wide, vein not visible; **petals** oblong, obtuse, 1 mm long, 0.3 mm wide, faintly 1-veined; **lip** ovate, concave, with sides low and broadly rounded below the middle, 0.8 mm long, 0.4 mm wide, the apex obtuse to rounded, the disc featureless, the base truncate, attached to the base of the column; **column** stout, 0.5 mm long, the anther and stigma apical, the base thick,

GUATEMALA: Chilion near Mozatenanque, Dec. 1869, *C. Bernoulli 1173* (Holotype: AMES), C. Luer illustr. 19288.

This species, apparently rare and endemic in Guatemala, is known from only one collection in 1869 by Bernoulli. A portion of this collection found its way into Leslie Garay's private herbarium now incorporated into AMES. It is distinguished by a minute, shortly repent habit, and long peduncles that far surpass the tiny, elliptical leaves. The flowers are produced successively in a long-pedicellate raceme. The simple flowers are similar to those of *P. jungermannioides* (Schltr.) Garay and *P. minimiflora* (Schltr.) Garay, the two other species with the smallest known flowers in the orchid family. The lip of *P. bernoullii* is ovate, concave, obtuse, and shorter than the sepals. The lips of the other two species are ovate, narrowed into an acute tip, and not concave.

The following six species of *Pleurothallis* are members of subgenera *Aenigma, Ancipitia, Crocodeilanthe*, and *Pleurothallis* subgenus *Acronia*, all of which have been treated in *Icones Pleurothallidinaru*. The figures are not numbered in sequence within their respective taxa.

Pleurothallis ankyloglossa Luer & Hirtz, sp. nov.

Ety.: From the Greek *ankyloglossa*, "tongue-tied," referring to the acutely reflexed labellum.

Planta grandis, racemo remotifloro folio anguste ovato longiore, floribus nonresupinatis, sepalo mediano synsepaloque anguste ovatis, petalis anguste ovatis erectis, labello suborbiculato profunde concavo ad apicem acutum argute reflexo distinguitur.

Plant large, epiphytic, caespitose; roots numerous, coarse. Ramicauls stout, erect, 20 cm long, with a thin, tubular sheath below the middle and 2 others at the base. **Leaf** erect, coriaceous, narrowly ovate, ca. 20 cm long, 2.5 cm wide, the base cuneate, sessile. **Inflorescence** an arching, remotely few-flowered raceme, to 27 cm long including the peduncle 10-12 cm long, borne from the base of the leaf with a slender spathe 18 mm long; floral bracts thin, infundibular, 7-10 mm long; pedicels 10-20 mm long; ovary 6-7 mm long; flowers non-resupinate, **sepals** yellow, striped with purple along the veins, glabrous, the middle sepal narrowly ovate, acute, concave, 21 mm long, 6 mm wide, 3-veined, the lateral sepals completely connate into a concave, ovate, acute synsepal, 21 mm long, 8 mm wide, 4-veined; **petals** yellow, narrowly ovate, oblique, acute, 17 mm long, 3.5 mm wide, 3-veined, in apposition above the column; **lip** suborbicular, deeply concave, appressed against the column, 2.5 mm long, 3 mm wide, 1.5 mm deep, with the apex triangular, acute, abruptly reflexed and appressed against the undersurface of the lip, the disc within the cavity of the lip with a broad, flat, densely cellular-glandular callus, the base hinged to the base of the column; **column** stout, semiterete, pubescent beneath, 2.5 mm long, the anther and transversely bilobed stigma apical, the base of the column thick.

ECUADOR: **Morona-Santiago**: between Limón and Río Zamora, along Río Yanguza, alt. 1200 m, 22 Oct. 1999, *A. Hirtz, E. Sanchez & S. Marin 7050* (Holotype: MO), C. Luer illustr. 19354.

This large species, apparently endemic in southeastern Ecuador, is unique in *Pleurothallis* subsection *Acroniae*. It is characterized by the long ramicaul; narrow, sessile leaf; and a long, drooping raceme of a few, remote flowers. The flowers are pendent with a curved ovary that places the lip uppermost. The flowers are bilabiate with similar, narrow, concave middle sepal and synsepal. The petals are held "downward," opposite the lip and column. The lip is suborbicular and deeply concave, appressed against the column, and the apex is abruptly bent "downward" against the outer, bottom surface of the lip. As in the subsection, the anther is apical with an apical, transversely bilobed stigma.

Pleurothallis drewii Luer, sp. nov.

Ety.: Named for W.B. Drew, collector of this species.

Inter species subsectionis *P. Acroniae* Luer, rhizomate repenti, foliis grandis obovatis obtusis breviter acuminatis racemo plus minusve aequilongo, pedicilis elongatis, sepalo dorsali synsepaloque concavis, petalis anguste ovatis et labello obscure trilobato acuto basi concavo distinguitur.

Plant large, epiphytic, repent, the rhizome stout, 1-2 cm long between ramicauls; roots slender, numerous. Ramicauls slender, erect, 18-23 cm long, with a tubular sheath below the middle and another at the base. **Leaf** erect, thinly coriaceous, elliptical-obovate, obtuse, shortly acuminate, 12-18 cm long, 7-8.5 cm wide, cuneate below into the sessile base. **Inflorescence** an erect, loosely subsecund, simultaneously many-flowered raceme to 15 cm long including the peduncle 4-8 cm long, subtended by a spathe 1.2-1.5 5 cm long, at the base of the leaf; floral bracts oblique, acute, 3-4 mm long; pedicels 9-12 mm long; ovary 2.5 mm long; flowers greenish white; **sepals** glabrous, the dorsal sepal ovate, concave, subacute, shortly acuminate obtuse, 7-8 mm long, 3.5 mm wide, 3-veined, the lateral sepals connate into a concave, narrowly ovate, acute synsepal 7-8 mm long, 2.75 mm wide, 2-veined; **petals** narrowly ovate, acute, 6 mm long, 1.4 mm wide, 1-veined, with the margins microscopically erose; **lip** ovate, obscurely trilobed, concave with sides erect and broadly rounded below the middle, 3.5 mm long, 2.5 mm wide expanded, the apex thick, acute, slightly incurved, the disc with a pair of low calli on the middle third, concave below, in apposition with a bulbous, pubescent column-foot; **column** stout, 1.5 mm long, the anther and stigma apical, the foot thick, convex, pubescent,

ECUADOR: **Imbabura**: near Camp, Alegria, east of Volcán Cayambe, alt. 9,650 ft., 11 May 1944, *W.B. Drew E-246* (Holotype: AMES). C. Luer illustr. 19276.

This species, apparently rare and endemic in northern Ecuador, is one of the largest known in *Pleurothallis* subsection *Acroniae*. The leaves are broadly obovate

and shortly acuminate, with a loose, long-pedicellate raceme about as long. The dorsal sepal is concave and broader than the equally long synsepal. The petals are narrowly ovate and acute. The lip is ovate and concave with erect, rounded sides below the middle. The base of the lip is concave to accommodate a bulbous, pubescent column-foot.

Pleurothallis driessenii Luer, sp. nov.

Ety.: Named for Wiel Driessen of Panningen, The Netherlands, who cultivates this species.

Inter species subgeneris *Ancipitiae*, habitu parvo, foliis ellipticis, sepalo dorsali synsepaloque ovatis, petalis obovatis ad apicem incrassatis, et labello obovato concavo marginibus obtusis erectis distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, compressed above the middle, 5-6 cm long, up to 1.5 mm deep at the leaf, with a tubular bract below the middle and 2-3 sheaths at the base. **Leaf** coriaceous, erect, narrowly ovate, acute, 3.5-4 cm long, 0.9-1.1 cm wide, the base broadly cuneate, sessile. **Inflorescence** a solitary, successive flower borne from a reclining spathe 4 mm long at the base of the leaf; peduncles 6-8 mm long; floral bract 2 mm long; pedicel 4-8 mm long; ovary 2 mm long; **sepals** light yellow, minutely flecked with light purple, glabrous, the dorsal sepal ovate, acute, concave, 5 mm long, 2 mm wide, the lateral sepals connate into an ovate, subacute, concave synsepal, 5 mm long, 2.5 mm wide; **petals** light yellow with the apices apple green, oblong-obovate, obtuse, 3 mm long, 1.25 mm wide, thickened and microscopically subverrucose at the tip; **lip** white, lightly flecked with brown, fleshy, obovate, obtuse, concave, 2.75 mm long, 1.75 mm wide expanded, the sides erect and obtusely angled above the middle, the margin minutely irregular toward the apex, the base thickened and subtruncate, broadly attached to the tip of the column-foot; **column** white, semiterete, 1.5 mm long, the anther apical, exposed, the stigma subapical, the foot thick, obsolescent, with the apex of the column.

ECUADOR: Without locality, obtained from José Portilla, Aug. 1998, flowered in cultivation in The Netherlands, March 1999 by *W. Driessen s.n.* (Holotype: MO), C. Luer illustr. 19055.

This species of *Pleurothallis* subgenus *Ancipitia* is characterized by the small habit; slender ramicauls that are ancipitous toward the leaf; an elliptical, sessile leaf; a small flower with ovate, concave, dorsal sepal and synsepal; and obovate petals that are thickened at the tip. The lip is ovate and concave with erect, obtuse margins above the middle.

Pleurothallis knappii Luer, sp. nov.

Ety.: Named for S. Knapp who collected this species.

Species haec *P. tryssae* Luer affinis, sed habitu multimajore, floribus niveis, et labello trilobato non ad medium deflexo differt.

Plant medium in size to large, epiphytic, caespitose; roots very slender. Ramicauls slender, erect to suberect, 10-22 cm long, with a thin, tubular sheath below the middle and 2 others at the base. **Leaf** erect, coriaceous, elliptical, acute, acuminate, 8-11 cm long, 2.5-3.5 cm wide, the base cuneate, sessile. **Inflorescence** 1-3 erect, delicate, distichous, loosely and simultaneously several- to many-flowered racemes 8-12 cm long including the peduncle ca. 3 cm long, borne from a spathe 1-1.5 cm long, at the base of the leaf; floral bracts infundibular, 1.5 mm long; pedicels 1.25 mm long; ovary 1 mm long; **sepals** translucent white, glabrous, the dorsal sepal ovate, acute, attenuate, concave in the lower third, 6 mm long, 2 mm wide, 3-veined, the lateral sepals completely connate into a concave, narrowly ovate, obtuse synsepal, 6 mm long, 2.25 mm wide; **petals** white, entire, narrowly ovate, subulate, acute, attenuate, 5.5 mm long, 0.9 mm wide, 1-veined; **lip** white, trilobed, 2 mm long, 1 mm wide, 1.5 mm wide across the lateral lobes expanded, the middle lobe ovate, sharply acute, the lateral lobes on the basal third, erect, oblique, antrorse, obtuse, the disc with a pair of low, rounded calli near the middle, the base truncate, hinged to the base of the column; **column** stout, semiterete, 1.5 mm long, the anther and stigma apical, the base of the column thick.

PANAMA: **Veraguas**: Cerro Tute, Altos de Piedras, west of Santa Fe, alt. 1250-1410 m, 15 Dec. 1981, *S. Knapp & K. Sytsma 2653* (Holotype: MO), C. Luer illustr. 19313. **Chiriquí**: above San Felix mining road, turn-off to Escopeta, alt. 1200-1500 m, 12 Mar. 1976, *T.B. Croat 33121* (MO, in fruit).

This species of *Pleurothallis* subsection *Acroniae* is apparently endemic in western Panama. It is most closely related to the Ecuadorian *P. tryssa* Luer, but it

differs from the latter by a much larger habit, but with small, translucent white, delicate flowers about the same size. The leaves are erect, acuminate, and cuneate at the sessile base. One to three, usually many-flowered racemes surpass the leaf. The dorsal sepal and synsepal are narrowly obtuse while the petals are long and subulate. The lip is three-lobed with the midlobe sharply acute, and the lateral lobes obliquely erect below the middle.

Pleurothallis lappacea Luer, sp. nov.

Ety.: From the Latin *lappaceus*, "like a burr," referring to the ovary.

Planta parva rhizomate breviter ascendenti ramicaulibus abbreviatis, pedunculo foliis ellipticis plus minusve aequilongo, inflorescentia uniflora, ovario longispiculato, sepalo dorsali synsepaloque subacutis pubescentibus, petalis ovatis ciliatis minutis, et labello subquadrato minute verruculoso distinguitur.

Plant very small, epiphytic, shortly repent, the rhizome more or less ascending, 1-3 mm long between ramicauls; rooting from nodes. Ramicauls suberect, 1-1.5 mm long, enclosed by 2 thin, loose, tubular sheaths. **Leaf** erect, thickly coriaceous, elliptical, subacute to obtuse, 8-10 mm long including a petiole 1 mm long, 5-5.5 mm wide, the base cuneate into the petiole. **Inflorescence** a single flower, borne by a slender peduncle 9-10 mm long, from the ramicaul; floral bract thin, tubular, 1.5 mm long; pedicel 2.5 mm long; ovary densely spiculate, 1.5 mm long, 2 mm broad; **sepals** minutely ciliate, the dorsal sepal pubescent, light yellow, ovate, acute, 9 mm long, 5 mm wide, 3-veined, the lateral sepals orange, microscopically pubescent, connate into an elliptical, shortly bifid lamina with subacute apices, 10 mm long, 6.5 mm wide; **petals** translucent, ovate, acute, ciliate, 1.25 mm long, 0.75 mm wide, 1-veined; **lip** orange, subquadrate, shallowly bilobed with the lobes rounded, with similar basal lobes, 2.5 mm long, 3 mm wide, verrucose with the margins denticulate-erose, the disc flat, the base attached to the base of the column; **column** erect, semiterete, 1 mm long, dilated above the middle, the anther, rostellum and stigma apical, the foot obsolescent.

ECUADOR: **Carchi**: above Chical, alt. 1300 m, collected by J. Portilla, cultivated at Gualaceo, Nov. 1999, *A. Hirtz 7134* (Holotype: MO), C. Luer illustr. 19345.

This species of *Pleurothallis* subgenus *Aenigma* is apparently rare and endemic in northern Ecuador. It is characterized by the small, ascending habit; a single flower borne by a peduncle about as long as the sepals; a densely long-spiculate ovary; a pubescent dorsal sepal and broad synsepal; minute, ciliate petals; and a minutely verrucose, subquadrate lip. The lip is shallowly bilobed with the corners at both the apex and base rounded.

Pleurothallis possoae Luer, sp. nov.

Ety.: Named for Martha Posso, co-collector of this species.

Species haec *P. xiphizusae* Rchb.f. affinis, sed floribus minoribus, sepalis ciliatis, lateralibus acutis et labello bicalloso differt.

Plant medium in size to large, epiphytic, densely caespitose; roots coarse, numerous. Ramicauls fasciculate, stout, erect, 5-13 cm long, enclosed by a loose, tubular sheath and 2-3 loose, tubular, imbricating sheaths about the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, 5-8 cm long, 2-3 cm wide, cuneate below into the sessile base. **Inflorescence** 1-3, secund, densely and simultaneously many-flowered racemes 10-16 cm long including the peduncle 3-4 cm long, subtended by a foliaceous spathe 2-2.5 cm long, at the base of the leaf; floral bracts inflated, cucullate, obtuse, 10-12 mm long, enclosing the pedicel, ovary and base of the flower; pedicels 6 mm long; ovary 2 mm long; **sepals** brown with yellow veins, subcarinate, glabrous externally, ciliate, pubescent within, the dorsal sepal oblong, obtuse, concave, 11 mm long, 5.5 mm wide, 3-veined, the lateral sepals ovate-triangular, acute, 12 mm long, 3 mm wide, connate 3 mm; **petals** translucent, broadly elliptical, 7 mm long, 3.8 mm wide, 3-veined, the apex broadly rounded; **lip** subquadrate, concave with sides erect, 4.5 mm long, 3.25 mm wide unexpanded, 4.5 mm wide expanded, the apex broadly rounded, the disc with a pair of semilunate calli above the middle, concave between, and with a transverse callus above the basal cavity, firmly attached to the end of the column-foot; **column** stout, 4 mm long, the foot thick, 1 mm long, the anther subapical, the rostellum and stigma ventral.

COLOMBIA: **Putumayo**: Santiago, Páramo de Bordoncillo, San Antonio de Bellavista, alt. 3240 m, 10 Mar. 1999, *S.M. Pasmiño & M.R. Posso 22* (Holotype: PSO; Isotype: MO), C. Luer illustr. 19268; near Pasto, alt. 9,000 ft., *E. Klaboch s.n.* (AMES).

In habit, this species of subgenus *Crocodeilanthe* resembles *P. xiphizusa* with the ramicauls clad in long, loose, tubular sheaths; a large, foliaceous spathe; and a long, distichous raceme with large, cucullate floral bracts. The flowers, however, are similar to those of *P. lavaegata* but larger with the sepals ciliate-pubescent within, and with the laterals acute and free from below the middle. The petals are broadly oblong. The lip and column are also similar to those of *P. lavaegata* with the lip subquadrate and bicallous near the middle.

Pleurothallis thomasii Luer, sp. nov.

Ety.: Named for Hawkins Thomas who collected this species.

Species haec *P. villosae* Fawc. & Rendle persimilis, sed floribus multiminoribus flavis immaculatis et pedicelis brevissimis differt.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, compressed above the middle, 5-12 cm long, compressed above, with a tubular sheath below the middle, and 2-3 sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute to narrowly obtuse, 4-6 cm long, 0.8-1.2 cm wide, cuneate below into the sessile base. **Inflorescence** a lax, distichous, strict, successively few-flowered raceme with 1-2 flowers open simultaneously, to 7 cm long including the peduncle 3-5 cm long, subtended by a spathe 4 mm long, from the apex of the ramicaul at the base of the leaf; floral bracts 2 mm long; pedicels 1.5 mm long; ovary 1.2 mm long; **sepals** yellow, with long, villous hairs within, the dorsal sepal elliptical-obovate, obtuse, concave, 4 mm long, 3 mm wide expanded, 3-veined, connate to the laterals for 1 mm, the lateral sepals connate 1 mm into an obovate, concave, bifid synsepal, 3.75 mm long, 3 mm wide expanded, the apices obtuse, in apposition; **petals** translucent, obovate-spathulate, rounded at the apex, 2.5 mm long, 1 mm wide; **lip** oblong-unguiculate, arcuate, 2.4 mm long, 1 mm wide, the blade oblong, round at the apex, with a pair of calli inside the margins, angled above the claw, the claw 0.8 mm long, with a minute lobule at each corner of the base, hinged to the tip of the column-foot; **column** narrowly winged, denticulate at the apex, 2.2 mm long, the foot 0.5 mm long, the anther and stigma ventral.

HONDURAS: **Olancho**: La Muralla National Park, northwest of La Union, alt. 1520 m, 6 June 1992, *Hawkins Thomas & D. Mejia 510* (Holotype: EAP; Isotype: MO), C. Luer illustr. 19314.

This species is closely related to the relatively frequent, Central American *P. villosa*, but differs from it by having smaller, yellow, unspotted flowers borne by short pedicels barely as long as the floral bracts. It is known from only one collection in Honduras.

Restrepiopsis niesseniae Luer, sp. nov.

Ety.: Named for Andrea Niessen who cultivates this species and submitted it for identification.

Species haec *R. tubulosae* (Lindl.) Luer affinis, sed ovario longissime papilloso et sepalis lateralibus quam sepalo dorsali aliquantum brevioribus differt.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3-6 mm long, enclosed by 5-7 brown, oblique, imbricating, tubular sheaths. **Leaf** erect, coriaceous, 2-2.5 cm long excluding a petiole 3 mm long, the blade elliptical, subacute to obtuse, 1.1-1.3 cm wide, cuneate below into the petiole. **Inflorescence** a succession of single flowers borne in a fascicle at the apex of the ramicaul peduncles 2-3 mm long; floral bracts 4-5 mm long; pedicels 4-6 mm long with a filament 3 mm long; ovary densely long-papillose, 1.5 mm long, 1.5 mm wide; **sepals** yellow, free, the dorsal sepal elliptical, subacute, concave, 8 mm long, 4.5 mm wide, 3-veined, the lateral sepals oblong-arcuate, subacute or acute, 6 mm long, 2 mm wide, 3-veined; **petals** translucent, elliptical-obovate, broadly obtuse, the margins minutely erose toward the apex, 4.5 mm long, 2.25 mm wide, 1-veined; **lip** yellow, 3-lobed, oblong, 5 mm long, 3 mm wide, broadly rounded at the apex, the margins minutely erose-undulate, the lobes above the base, uncinate, antrorse, narrowly obtuse, the disc with a pair of low calli on the lower third anterior to the lobes, the base truncate, hinged on the end; **column** semiterete, arcuate, 3 mm long, the foot less than 1 mm long.

COLOMBIA: **Cauca**: near Cali, without further details, cultivated at Orquídeas del Valle, Cali, Apr. 2000, by *A. Niessen & J.C. Uribe 114* (Holotype: MO), C. Luer illustr. 19372.

Vegetatively, this species is indistinguishable from that of the frequent and widely distributed *R. tubulosa*. The flowers are also very similar except for the lateral sepals that are considerably shorter than the dorsal sepal. The most distinguishing feature is the long-papillose ovary, a unique feature in the genus. The basal lobes of the lip are uncinate, similar to some of those seen in *R. tubulosa*.

Scaphosepalum medinae Luer & Portilla, sp. nov.

Ety.: Named for Hugo Medina of Gualaceo, Ecuador, co-collector of this species.

Species haec *S. pleurothallodes* Luer & Hirtz affinis, sed racemo laxe prostrato, ovario papillosissimo, sepalis cristatis ecaudatis cum callis angustis marginalibus, et petalis obovatis differt.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3-8 mm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 2-3 cm long including an indistinct petiole 3-8 mm long, the blade elliptical-obovate, subacute to obtuse, 5-8 mm wide, gradually narrowed below into the petiole. **Inflorescence** a loose, successively few-flowered raceme up to 5 cm long including the smooth, more or less horizontal peduncle 2-3 cm long, from low on the ramicaul; floral bracts 3 mm long; pedicels 3-4.5 mm long; ovary densely papillose, 1 mm long; **sepals** lavender with white cells, erose-carinate, the dorsal sepal oblong, narrowly obtuse, concave within the thickened margin, 7 mm long, 3 mm wide, the lateral sepals connate 3 mm into a shortly bifid, elliptical, concave lamina, 5.5 mm long, 4.5 mm wide, the margins of each lateral sepal longitudinally thickened from just below the middle, cellular-glandular, the obtuse apices with a minute, external apiculum; **petals** light brown, obliquely obovate, broadly obtuse, unguiculate, 3.25 mm long, 2.25 mm wide, 2-veined; **lip** tan with white margins, thick, minutely cellular-glandular, oblong, obtuse-retuse, 3.5 mm long, 1.25 mm wide, the margins erect and broadly obtuse below the middle, the disc with a pair of low calli above the middle, the base truncate, bilobulate, hinged on the end; **column** semiterete, arcuate, winged above the middle, long-denticulate at the apex, 3 mm long, the foot 2 mm long.

ECUADOR: **Napo**: near Tena, alt. 500 m, collected by Hugo Medina and Ivan Acaro, Nov. 1999, cultivated at Ecuagenera, Apr. 2000, by *J. Portilla 262* (Holotype: MO), C. Luer illustr. 19371.

This little species is another, like *Scaphosepalum pleurothallodes*, that resembles *Pleurothallis acanthodes* Luer, and which also grows in the same region. In habit they are similar. *Scaphosepalum medinae* differs from *S. pleurothallodes* with a papillose ovary, erose-carinate sepals, and with the laterals deeply connate. The cushions are not well-developed as in *S. pleurothallodes*. They are merely cellular-papillose, longitudinal calli along the margins of the lateral sepals that resemble more closely the calli of *P. acanthodes*. Also, as in *S. pleurothallodes*, the petals and lip are more like *Pleurothallis* than *Scaphosepalum*.

The following four species raise the number of species known in the genus *Teagueia* to 10. The figures are numbered as a continuation of the previous illustrations in *Icones Pleurothallidinarum*-8.

Teagueia alyssana Luer & Jost, sp. nov.

Ety.: Named for Alyssa Roberts, of Burke, Virginia, co-sponsor of Louis Jost's work in Ecuador.

Inter species generis *Teagueiae* Luer, habitu repenti, foliis crassis late ovatis pusticulatis petiolatis quam ramicaulibus longioribus, racemo erecto paucifloro, floribus nigrescentibus, sepalo dorsali anguste ovato, sepalis lateralibus semiconnatis oblique late ovatis, petalis erectis angustissime ovatis, et labello oblongo basi biauriculato disco concavo cum fissura centrali distinguitur.

Plant average in size for the genus, epiphytic, long-repent, the rhizome 5-20 mm long between ramicauls; roots coarse, branching. Ramicauls ascending, stout, 3-5 mm long, enclosed by 1 or 2 imbricating sheaths. **Leaf** suberect, thickly coriaceous, pusticulate, petiolate, the blade broadly ovate, obtuse, 10-13 mm long, 8-10 mm wide, the base abruptly contracted into a petiole 2-5 mm long. **Inflorescence** an erect, distantly few-flowered raceme with 2-3 flowers open simultaneously, up to 5 cm long including the peduncle ca. 1.5 cm long, from near the apex of the ramicaul; floral bracts oblique, acute, thin, 2 mm long; pedicels 3-4 mm long; ovary 1 mm long; flowers purple-black, borne face-down; **sepals** glabrous, the dorsal sepal narrowly ovate with the sides revolute, acute, 8 mm long, 2.5 mm wide, 3-veined, the lateral sepals broadly ovate, oblique, obtuse with the tips shortly acuminate, 5 mm long, 6.4 mm wide, 2-veined, connate 1.5 mm; **petals** purple-black, linear-ovate with the sides revolute, acute, more or less angled between the middle and lower thirds, 6.25 mm long, 1 mm wide, incompletely 2-veined; **lip** purple-black, white at the base, oblong, 2.25 mm long, 1.4 mm wide, the apex rounded and concave with thick margins, the disc longitudinally cleft, spreading into a cavity above the middle, the base with rounded angles embracing the column, the base fixed to the column-foot; **column** short, 0.5 mm long, 1 mm broad, the stigma transversely oblong, the foot rudimentary.

ECUADOR: **Tungurahua**: northeast of Río Verde, alt. 3100 m, 19 Feb. 2000, *L. Jost & C. Sánchez* 1902 *(Holotype: MO), C. Luer illustr. 19337.*

This species is distinguished by the long-repent rhizome; short, ascending ramicauls; broadly ovate, petiolate, thickly coriaceous, pusticulate leaves; and an erect, loose raceme of purple-black flowers that face downwards. The dorsal sepal and flanking petals are narrowly ovate with revolute sides; the lateral sepals broadly ovate and semiconnate; and the lip is oblong and concave with a sharply defined cavity above the middle.

Teagueia cymbisepala Luer & Jost, sp. nov.

Ety.: From the Latin *cymbisepalum*, "a boat-shaped synsepal," referring to the connate lateral sepals.

Inter species generis *Teagueiae* Luer, habitu longirepenti, foliis crassis ellipticis petiolatis quam ramicaulibus longioribus, racemo longissimo, plus minusve horizontali remotifloro, sepalo dorsali elliptico acuto, sepalis lateralibus in synsepalum concavum ellipticum connatis, petalis ovatis acutis minute ciliatis, et labello oblongo basi biauriculato disco concavo cum fissura centrali distinguitur.

Plant medium in size for the genus, epiphytic, long-repent, the rhizome 2-3 cm long between ramicauls; roots coarse. Ramicauls ascending, stout, 8-10 mm long, enclosed by 1 or 2 imbricating sheaths. **Leaf** erect, thickly coriaceous, petiolate, elliptical, obtuse, 20-32 mm long including the petiole 8-12 mm long, 9-12 mm wide, the base cuneate into the petiole. **Inflorescence** a more or less horizontal, successive, distantly several-flowered raceme, up to 25 cm long including the peduncle 10-16 cm long, from near the apex of the ramicaul; floral bracts oblique, acute, thin, 3 mm long; pedicels 7-10 mm long; ovary 3 mm long; flowers red-orange: **sepals** microscopically ciliate, the dorsal sepal elliptical-ovate, acute, 11 mm long, 5 mm wide, 3-veined, the lateral sepals connate into an elliptical, concave, minutely bifid, subacute synsepal, 11 mm long, 7 mm wide, 6-veined; **petals** ovate, acute, shortly ciliate, 4.5 mm long, 2.25 mm wide, 1-veined; **lip** oblong, shallowly concave, 3.5 mm long, 2.25 mm wide, the apex rounded, the disc longitudinally cleft, spreading into a deep cavity above the middle, the base with rounded angles embracing the base of the column, the base fixed to the column-foot; **column** terete, 1.5 mm long, the stigma entire, the foot rudimentary.

ECUADOR: **Tungurahua**: northeast of Río Verde, alt. 3100 m, 19 Feb. 2000, *L. Jost & C. Sánchez* 1903 *(Holotype: MO), C. Luer illustr. 19338.*

This species is distinguished by the stout, long-repent rhizome; short, ascending ramicauls; elliptical, petiolate, thickly coriaceous leaves; and a long, suberect to transverse, remotely and successively flowered raceme of red-orange, bilabiate flowers. The dorsal sepal is ovate and acute; the lateral sepals are connate into a concave synsepal; the petals are ovate, acute and ciliate; and the lip is oblong and concave with a sharply defined cavity near the middle.

Teagueia jostii Luer, sp. nov.

Ety.: Named for Louis Jost, artist, photographer, ornithologist, who discovered this species.

Inter species generis *Teagueiae* Luer, habitu longirepenti, foliis crassis ellipticis petiolatis quam ramicaulibus longioribus, racemo stricto plus minusve horizontali remotifloro, sepalis flavis rubro striatis ovatis acutis acuminatis, sepalis lateralibus obliquis semiconnatis, petalis ovatis acuminatis, et labello obovato-pyriformi basi biauriculato disco cum fissura centrali distinguitur.

Plant small to medium in size for the genus, epiphytic, long-repent, the rhizome 15-20 mm long between ramicauls; roots coarse. Ramicauls ascending, stout, 5-6 mm long, enclosed by 1 or 2 verrucose, imbricating sheaths. **Leaf** suberect, thickly coriaceous, long-petiolate, broadly elliptical, obtuse, 15-24 mm long including the petiole 5-9 mm long, 8-10 mm wide, the base contracted into the petiole. **Inflorescence** a strict, suberect to horizontal, successive, remotely several-flowered raceme, up to 15 cm long including the peduncle ca. 6 cm long, from near the apex of the ramicaul; floral bracts oblique, acute, verrucose, 3 mm long; pedicels 5-6 mm long; ovary 1.5 mm long; flowers yellow with red stripes along veins, borne face-down; **sepals** glabrous, the dorsal sepal ovate, acute, acuminate, 4.75 mm long, 2.25 mm wide, 3-veined, the lateral sepals ovate, oblique, acute, acuminate, 4.5 mm long, 2 mm wide, 2-veined, connate 1.75 mm into a bifid synsepal; **petals** yellow with red midvein, microscopically serrulate, ovate, acute, acuminate, 2.25 mm long, 1 mm wide, 1-veined; **lip** greenish white, dark red toward

the base, obovate-suborbicular, shallowly concave, 3 mm long, 2.5 mm wide, the apex broadly rounded, the disc longitudinally cleft, with a deep cavity near the middle, the base with erect, rounded angles, the base rigidly connate to the column-foot; **column** terete, 1.5 mm long, the stigma confluent, the foot rudimentary.

ECUADOR: **Tungurahua**: northeast of Río Verde, alt. 3100 m, 19 Feb. 2000, *L. Jost & C. Sánchez* 1906 *(Holotype: MO), C. Luer illustr. 19340.*

This species is distinguished by the long-repent rhizome with verrucose sheaths; short, ascending ramicauls; broadly elliptical, long-petiolate, thickly coriaceous leaves; and a remotely flowered raceme of small flowers that face downwards. The sepals and petals are yellow and striped with red; the sepals are ovate, acute and acuminate; the lateral sepals are oblique and semiconnate; and the lip is comparatively large, suborbicular and shallowly concave with a sharply defined cavity near the middle.

Teagueia sancheziae Luer & Jost, sp. nov.

Ety.: Named for Carmen Sánchez of Ulba, Ecuador, co-collector of this species.

Inter species generis *Teagueiae* Luer, habitu longirepenti, foliis crassis ellipticis petiolatis quam ramicaulibus longioribus, racemo stricto plus minusve horizontali remotifloro, sepalis rubropurpureis late ovatis obtusis breviter acuminatis, sepalis lateralibus obliquis semiconnatis, petalis obovatis acuminatis, et labello oblongo basi biauriculato disco cum fissura centrali distinguitur.

Plant small for the genus, epiphytic, long-repent, the rhizome 5-10 mm long between ramicauls; roots coarse. Ramicauls ascending, stout, 3-5 mm long, enclosed by 1 or 2 verrucose, imbricating sheaths. **Leaf** suberect, thickly coriaceous, petiolate, broadly elliptical, obtuse, 5-10 mm long including the petiole 2-3 mm long, 5-6 mm wide, the base contracted into the petiole. **Inflorescence** a strict, suberect to horizontal, successive, loosely few-flowered raceme, up to 6 cm long including the peduncle ca. 2 cm long, from near the apex of the ramicaul; floral bracts oblique, acute, 2 mm long; pedicels 3 mm long; ovary 0.75 mm long; flowers red-purple, borne face-down; **sepals** glabrous, the dorsal sepal broadly ovate, obtuse, shortly acuminate, 3.2 mm long, 2.5 mm wide, 3-veined, the lateral sepals broadly ovate, oblique, obtuse, shortly acuminate, 2.8 mm long, 1.6 mm wide, 2-veined, connate 1.5 mm into a transverse, bifid synsepal; **petals** obovate, obtuse, shortly acuminate, 2.3 mm long, 1.3 mm wide, 1-veined; **lip** red-purple, black toward apex, oblong, shallowly concave, 2 mm long, 1.3 mm wide, the apex rounded, the disc longitudinally cleft, spreading into a cavity above the middle, the base with rounded angles embracing the base of the column, the base rigidly connate to the column-foot; **column** terete, 1 mm long, the stigma transversely oblong, the foot rudimentary.

ECUADOR: **Tungurahua**: northeast of Río Verde, alt. 3100 m, 19 Feb. 2000, *L. Jost & C. Sánchez* 1904 *(Holotype: MO), C. Luer illustr. 19339; same collection data,* L. Jost & C. Sánchez 1905 *(Paratype:* MO),

This species is distinguished by the long-repent rhizome with verrucose sheaths; short, ascending ramicauls; broadly elliptical, petiolate, thickly coriaceous leaves; and a loose raceme of small, red-purple flowers that face downwards. The sepals are broadly elliptical or suborbicular and obtuse with shortly acuminate tips; the lateral are oblique and semiconnate; and the lip is oblong and concave with a sharply defined cavity above the middle.

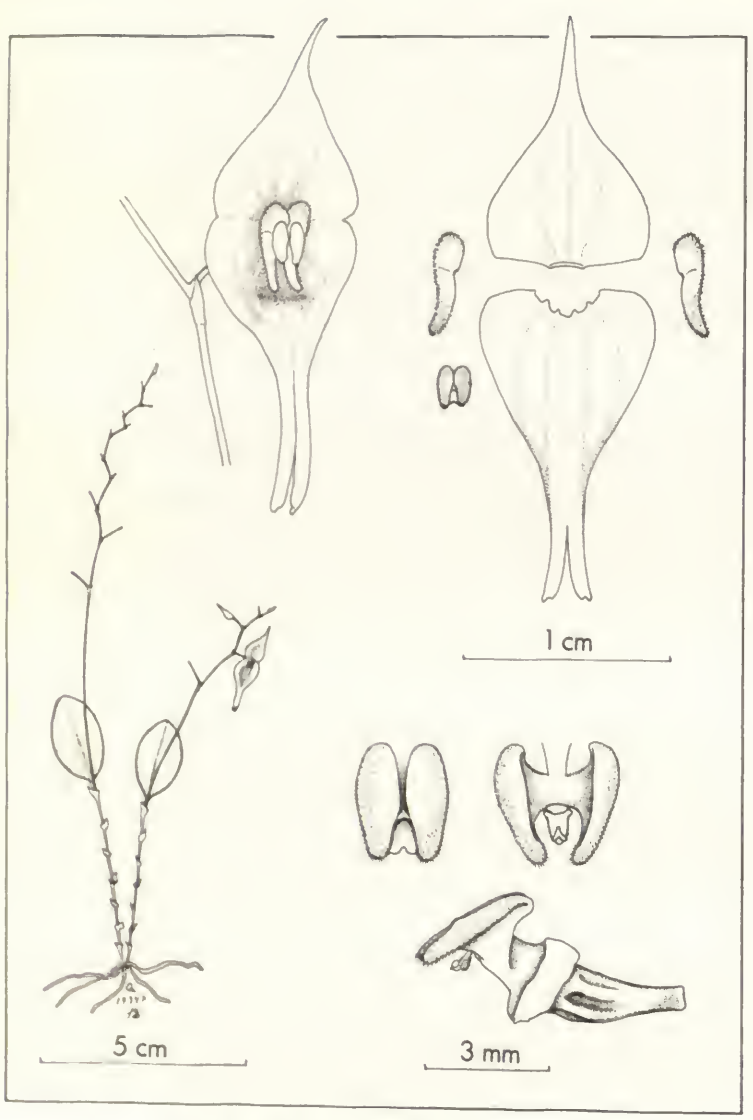


Fig. 305. Lepanthes curiosa

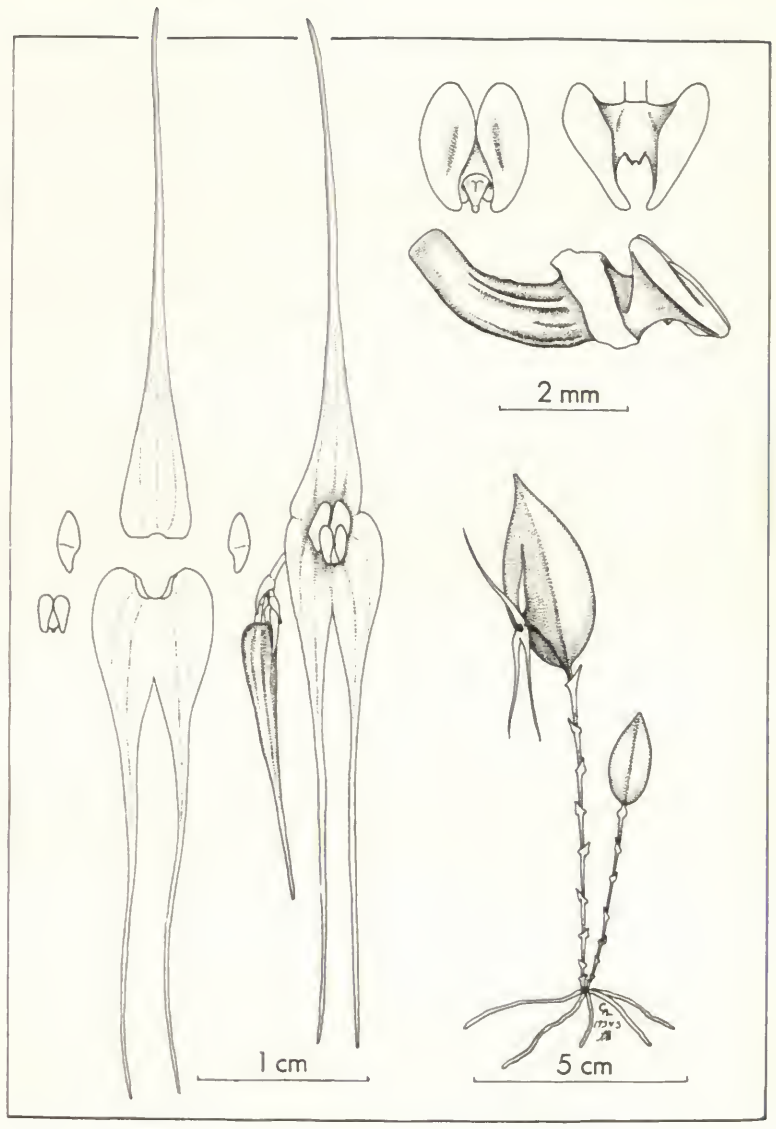


Fig. 306. Lepanthes ingridiana

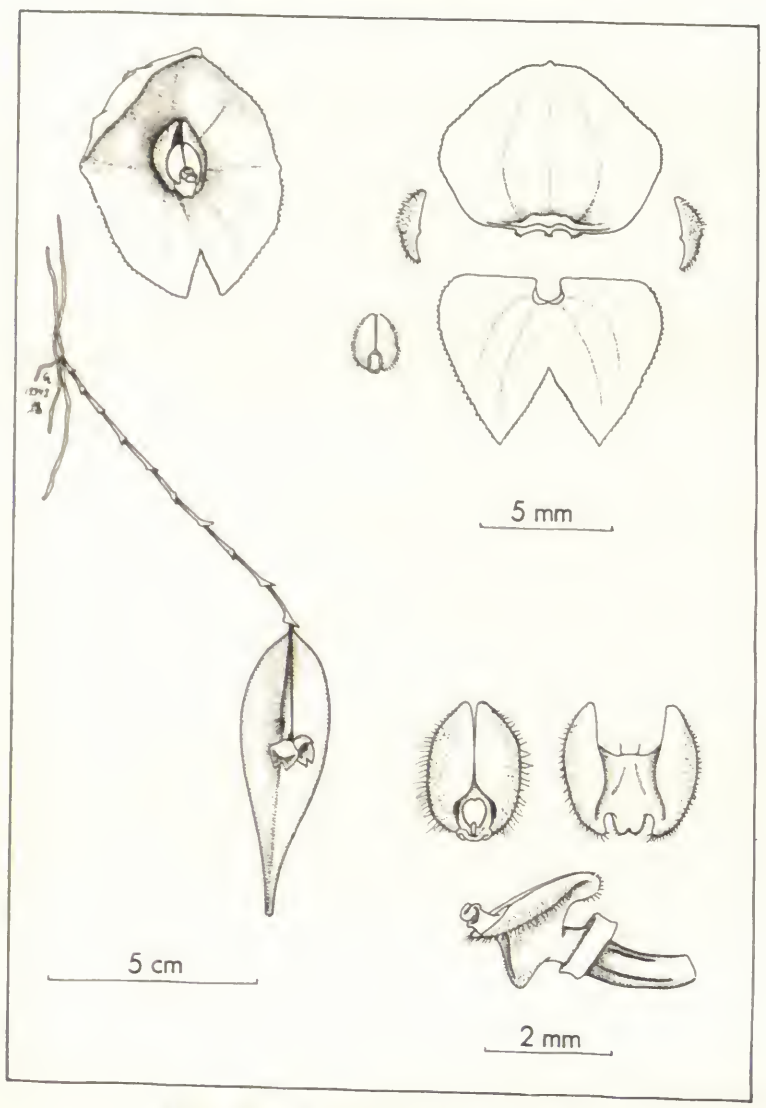


Fig. 307. Lepanthes pendula

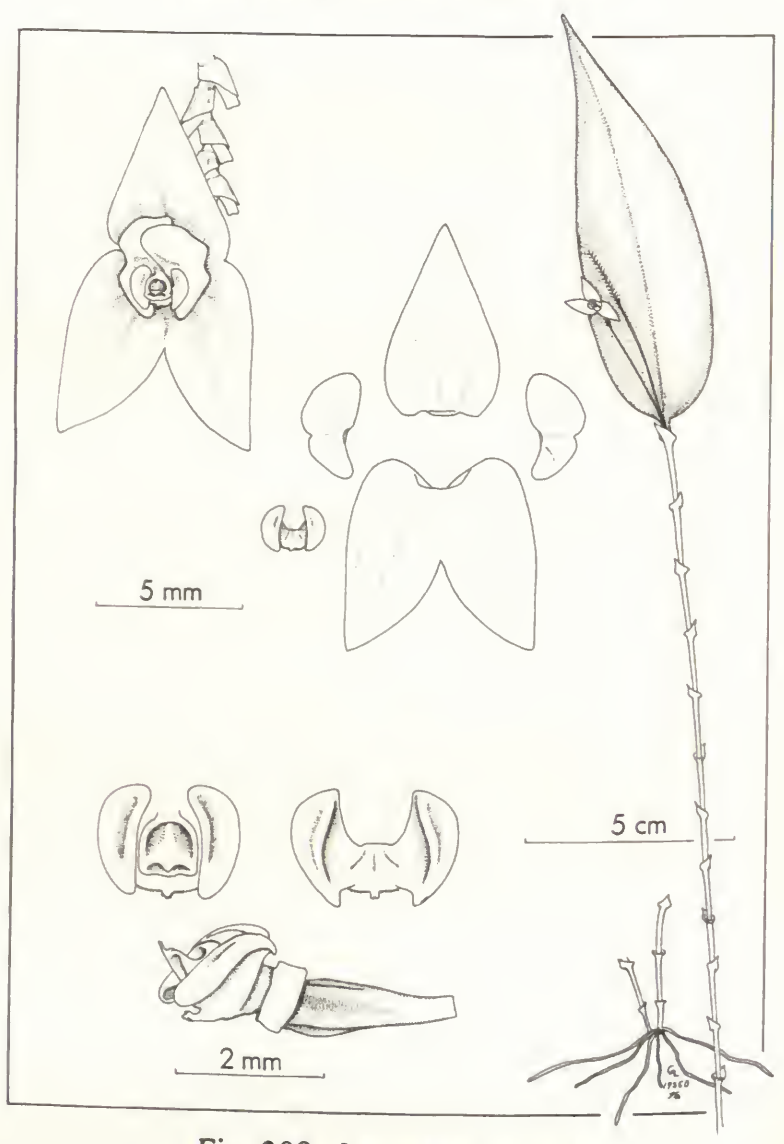


Fig. 308. Lepanthes rosoria

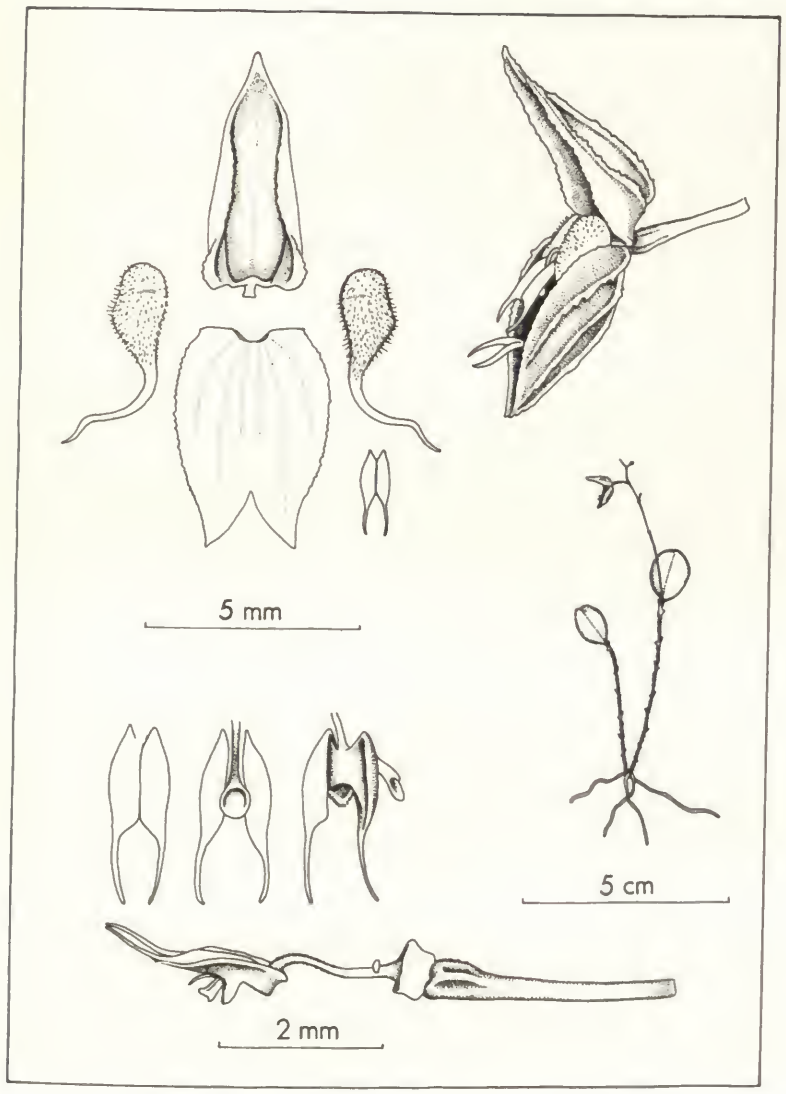


Fig. 309. Lepanthes tetrachaeta

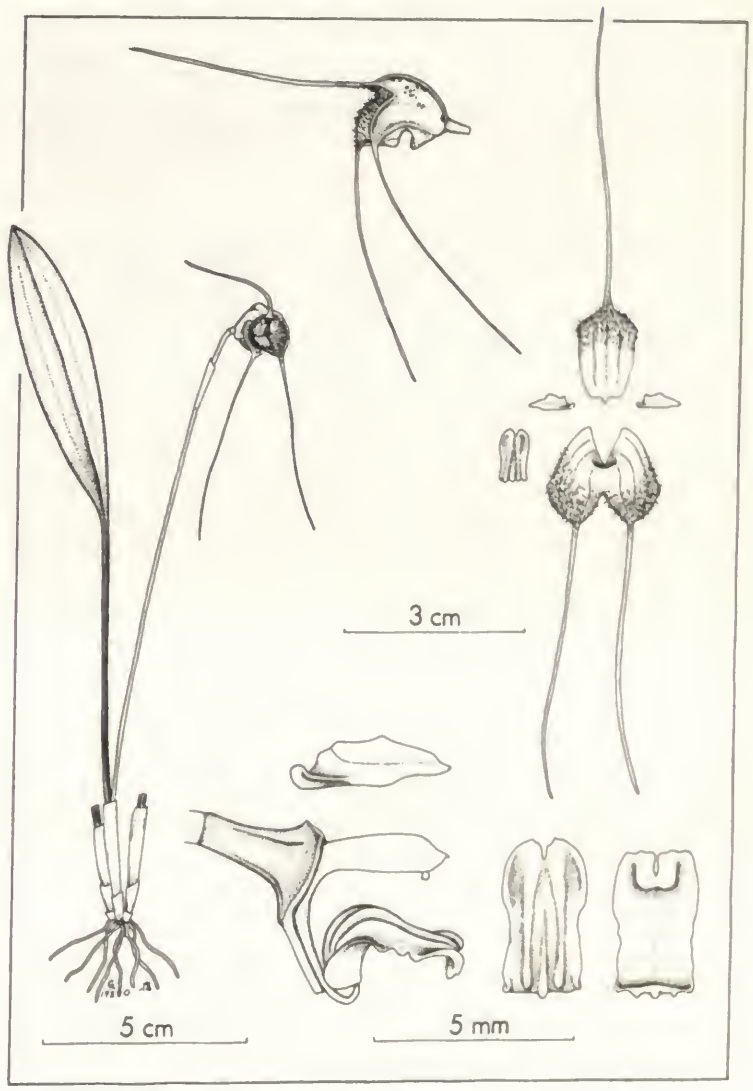


Fig. 1. Masdevallia burianii

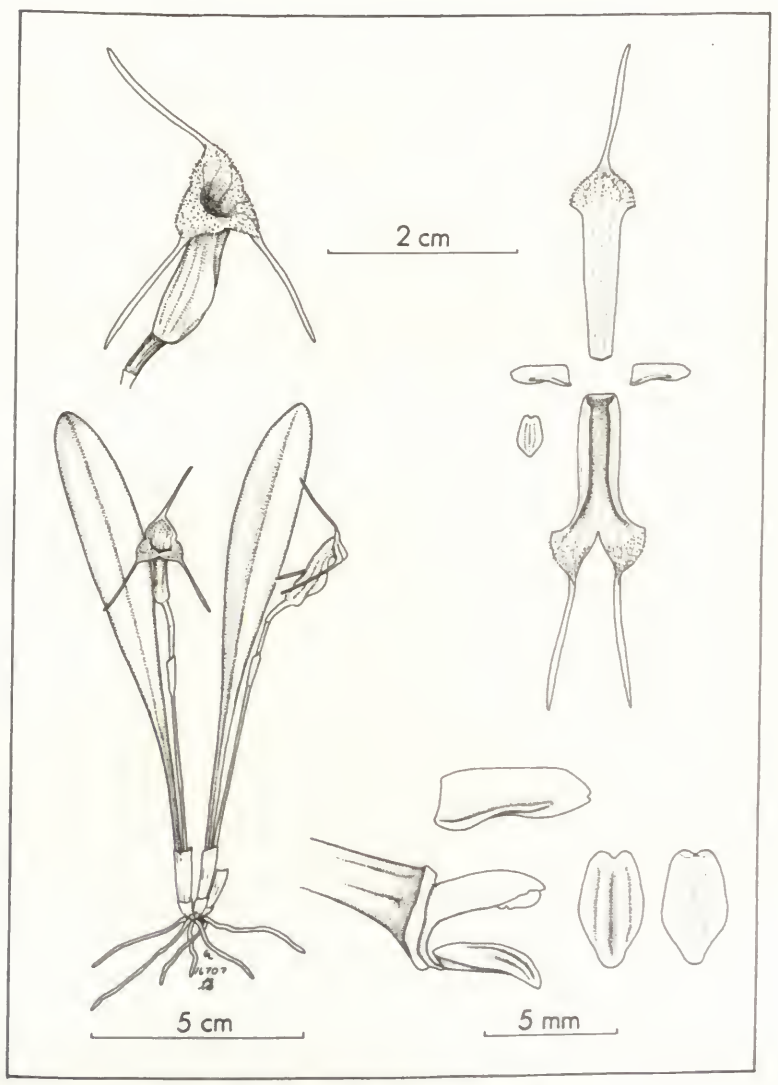


Fig. 2. Masdevallia calosiphon

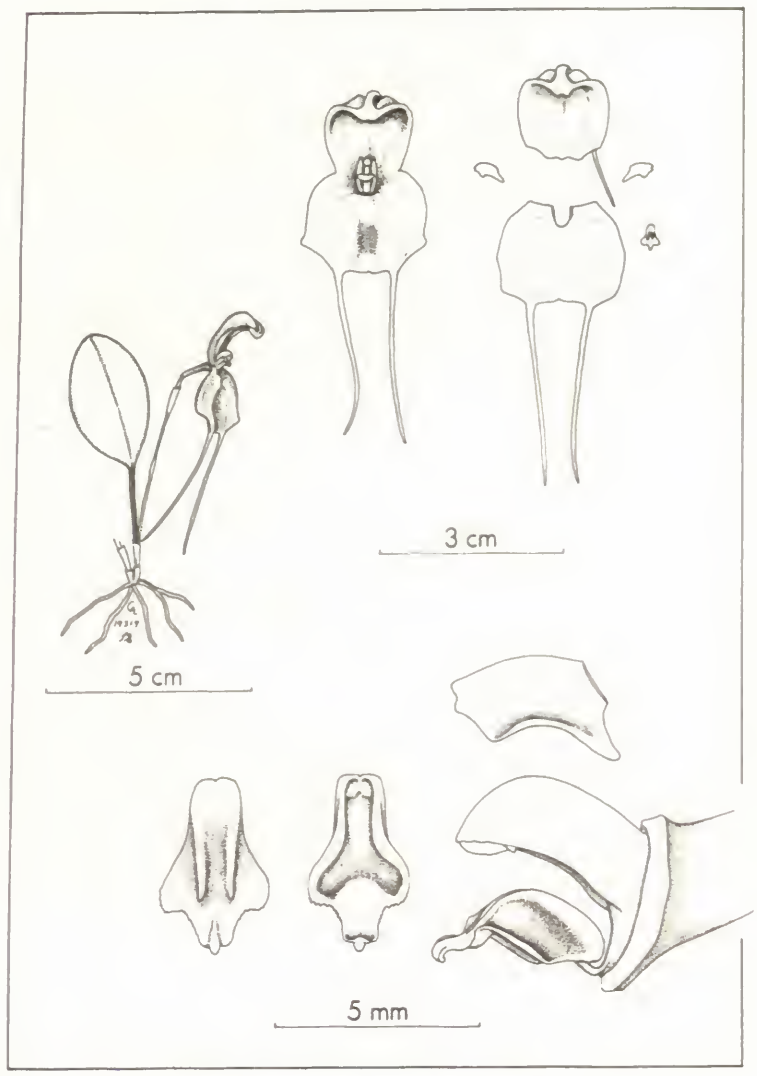


Fig. 3. Masdevallia formosa

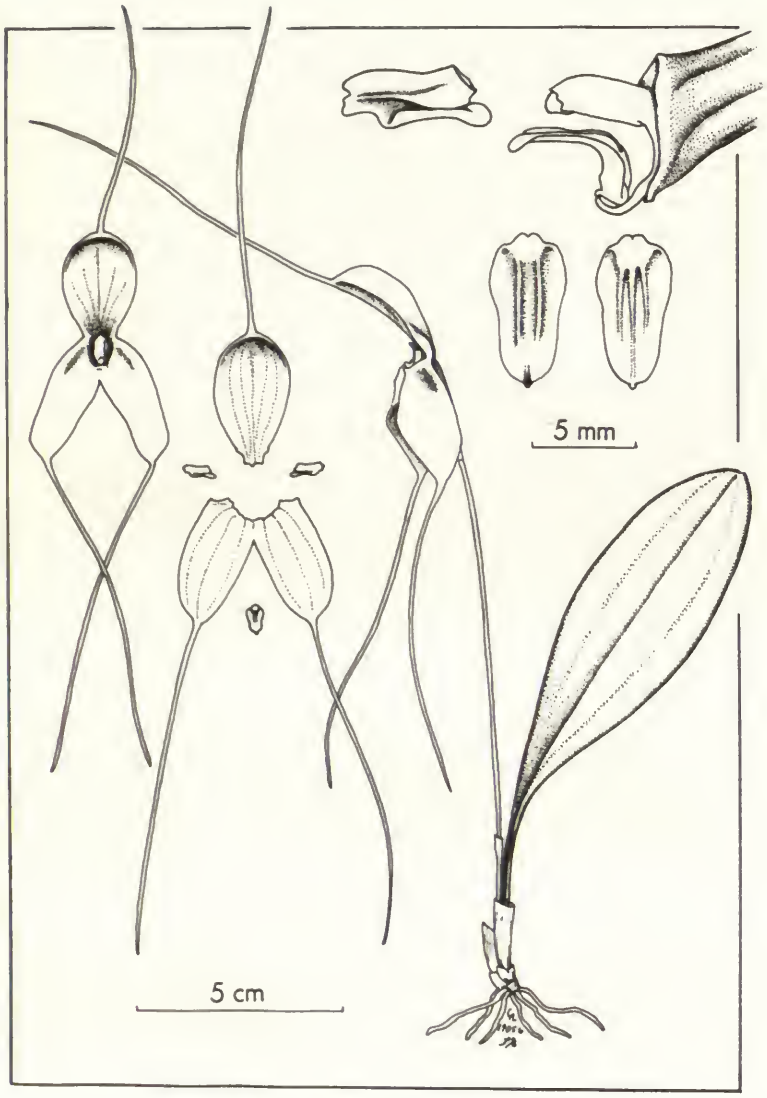


Fig. 4. Masdevallia immensa

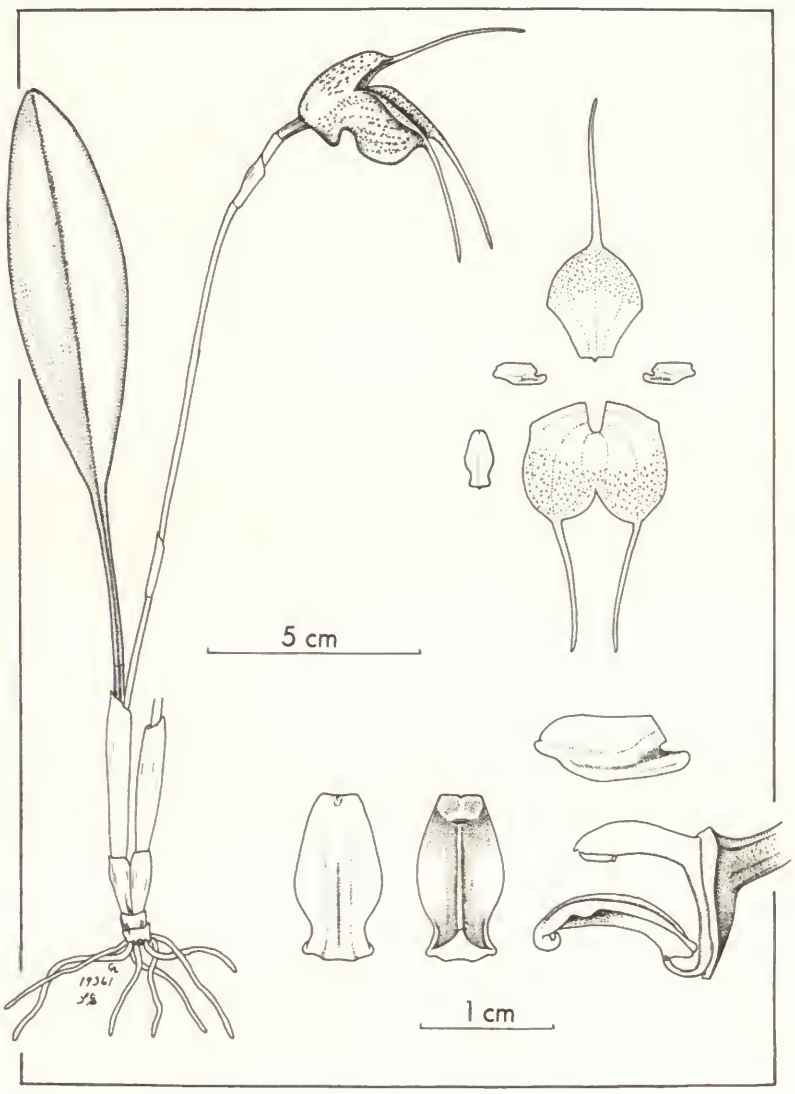


Fig. 5. Masdevallia juan-albertoi

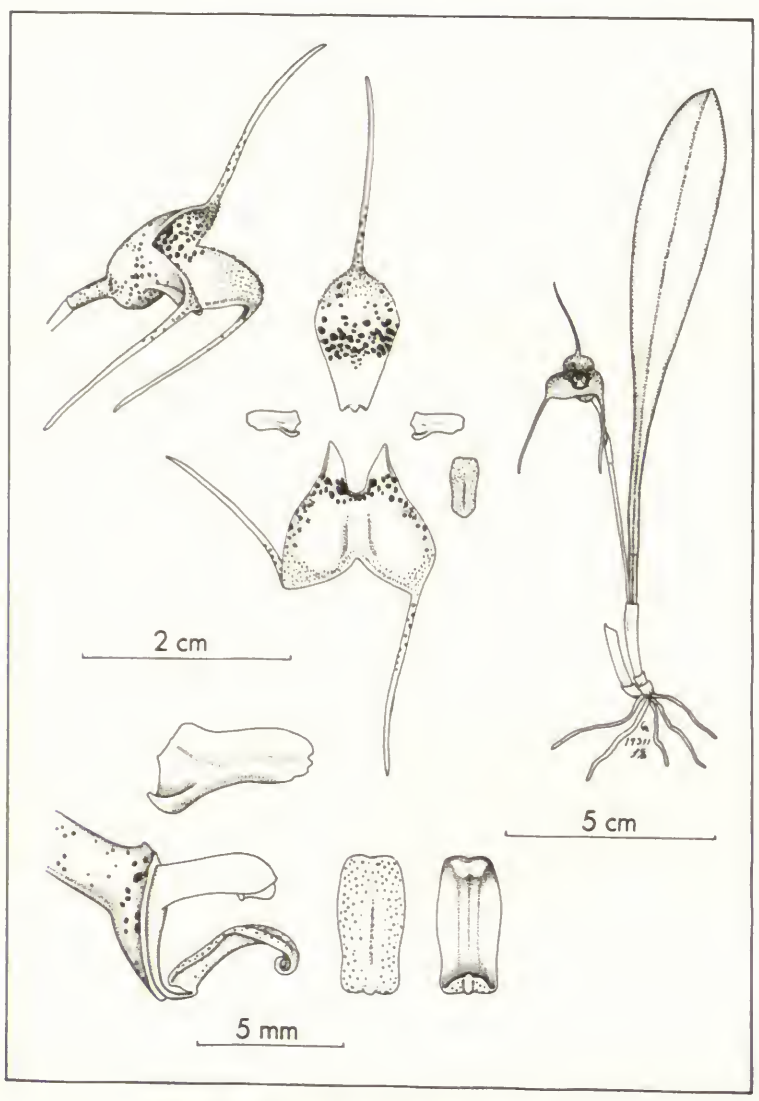


Fig. 6. Masdevallia karineae

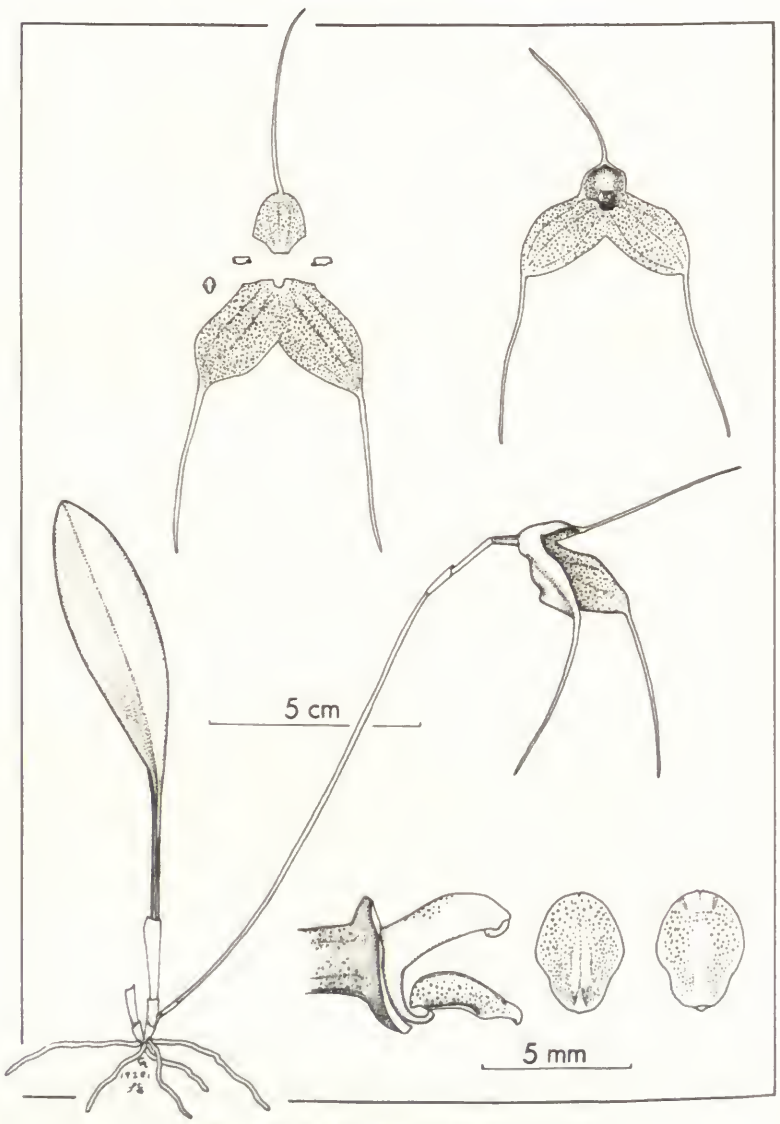


Fig. 7. Masdevallia marizae

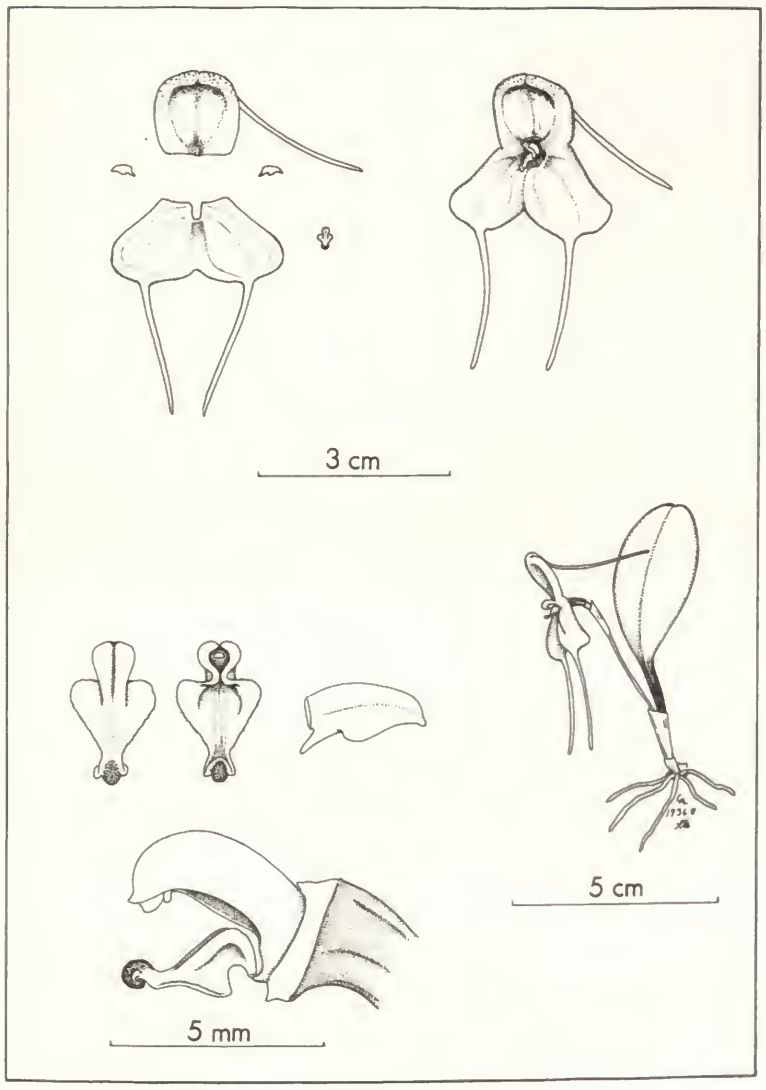


Fig. 8. Masdevallia nikoleana

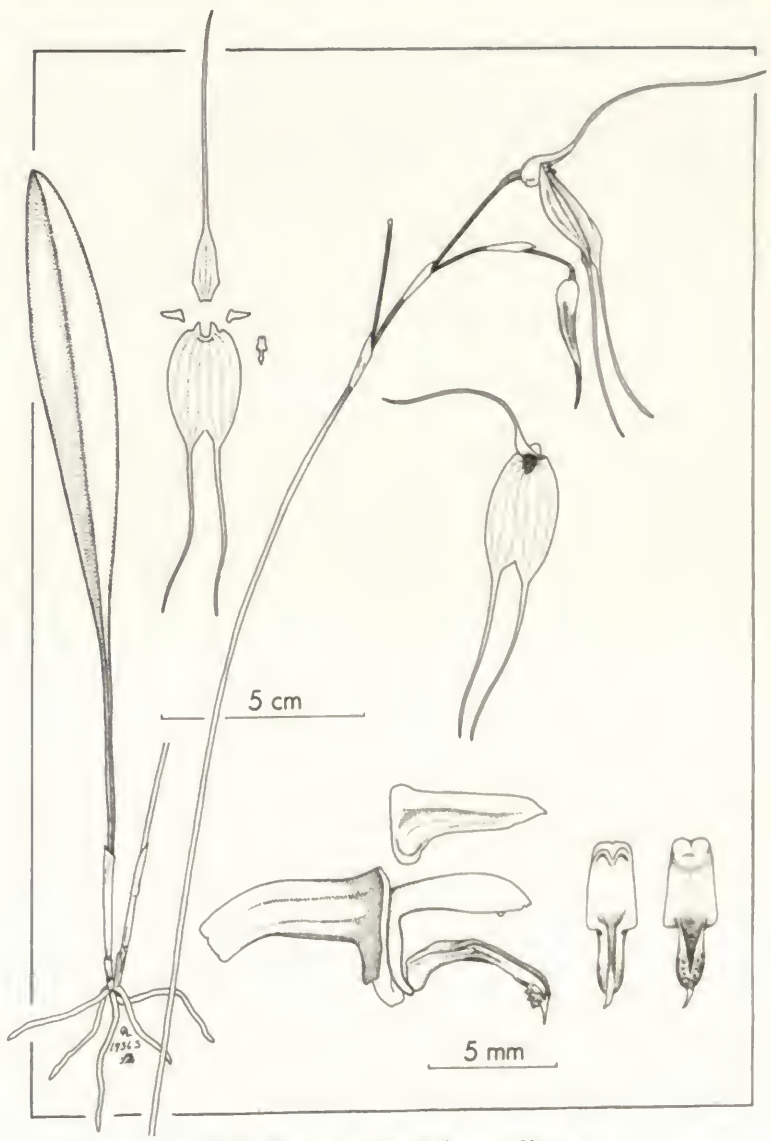


Fig. 9. Masdevallia prolixa

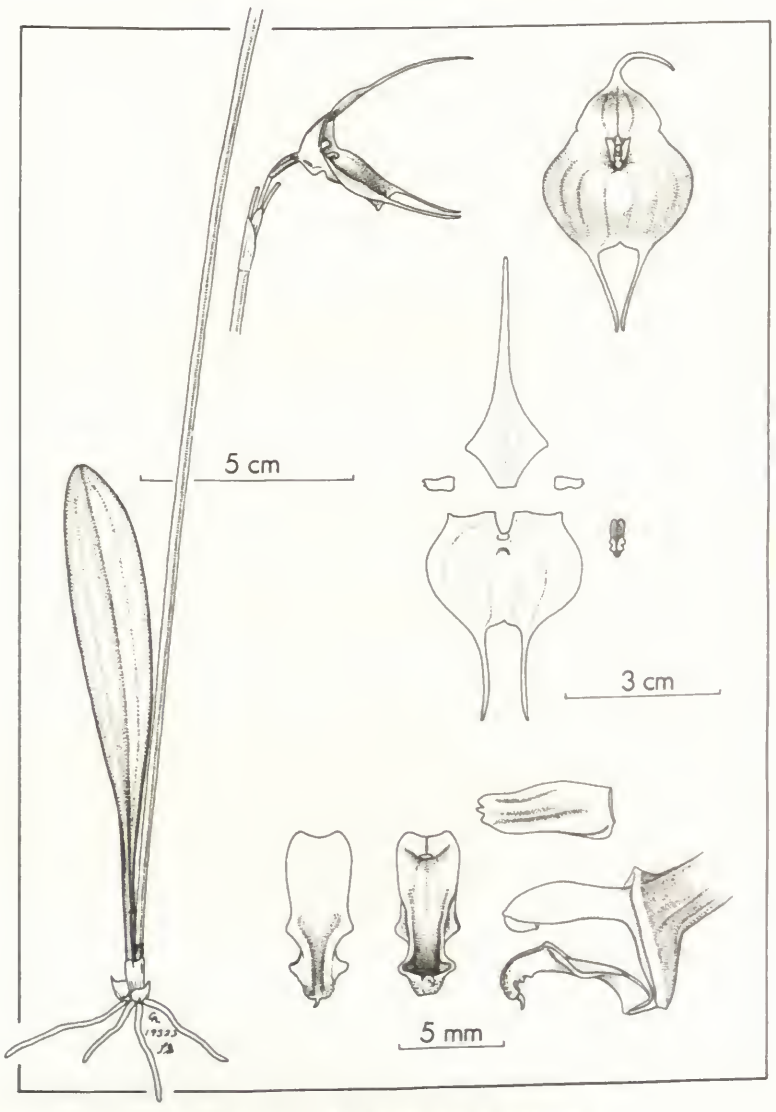


Fig. 10. Masdevallia venus

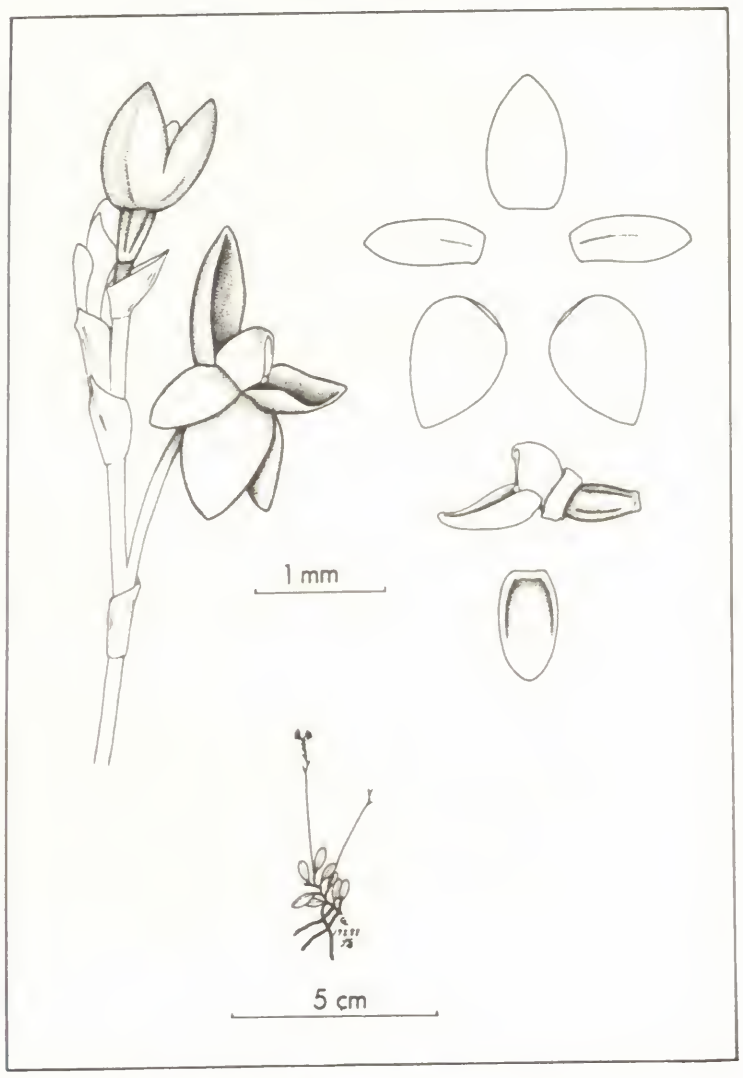


Fig. 93. Platystele bernoullii

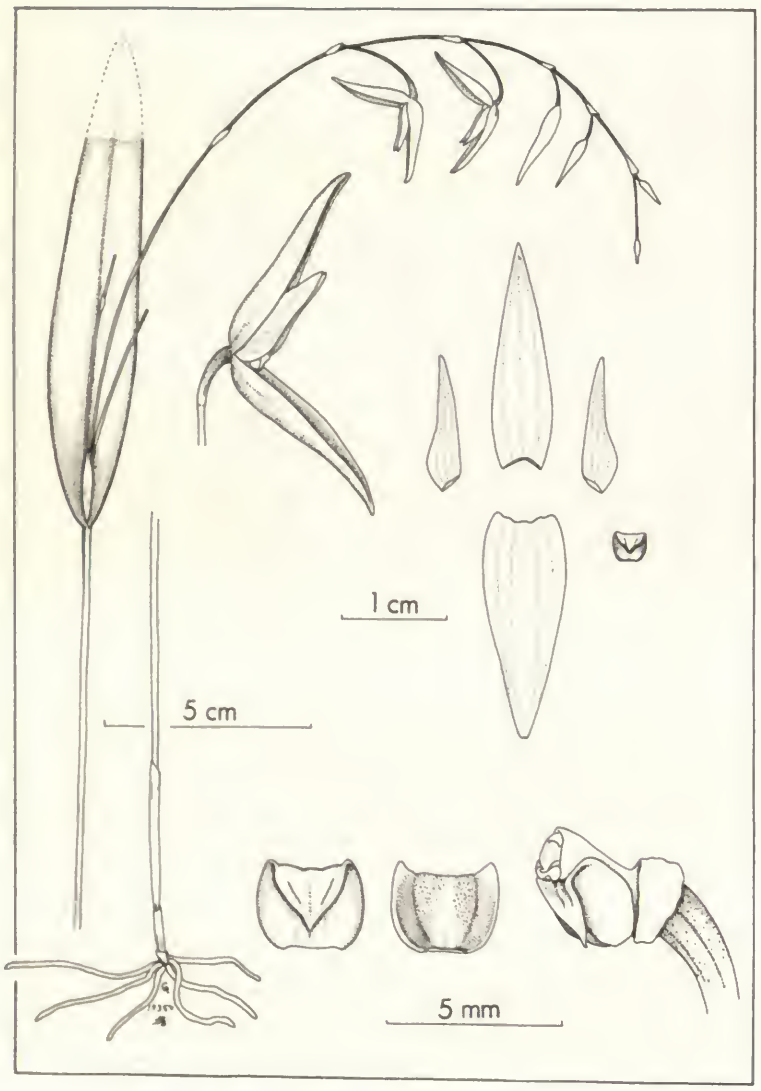


Fig. 1. Pleurothallis ankyloglossa

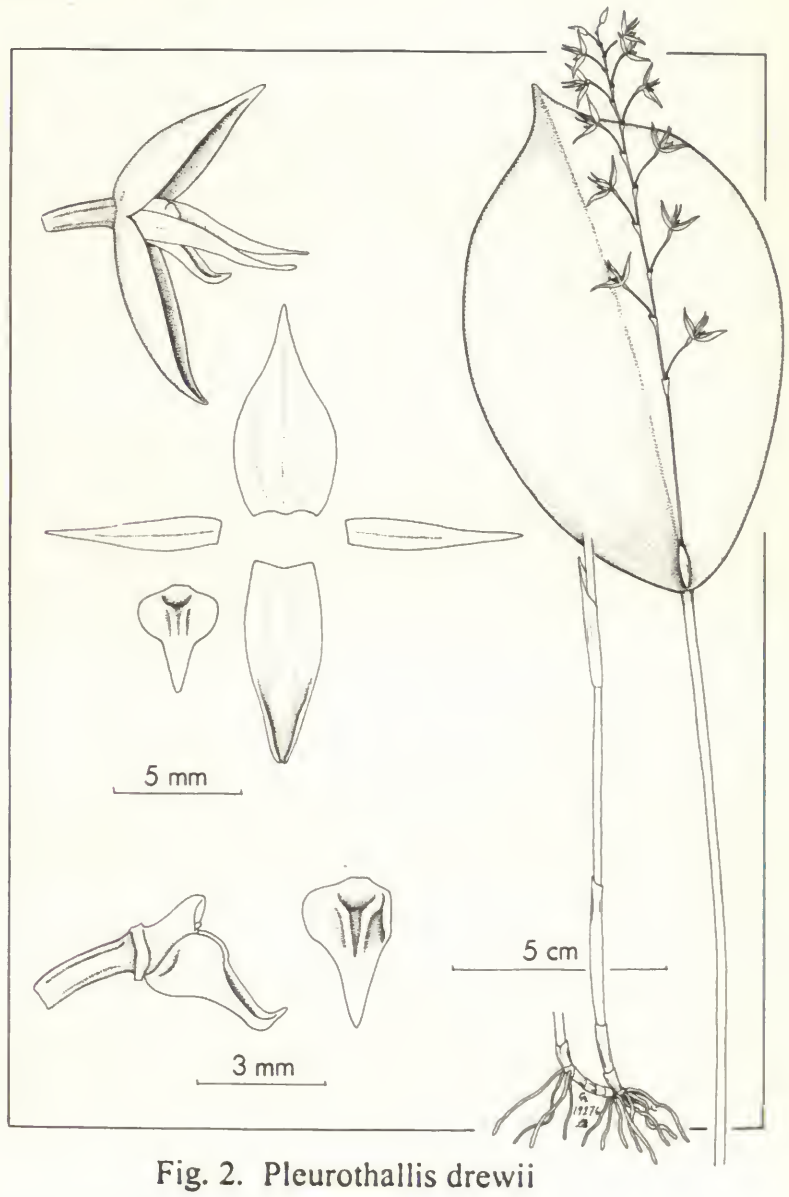


Fig. 2. Pleurothallis drewii

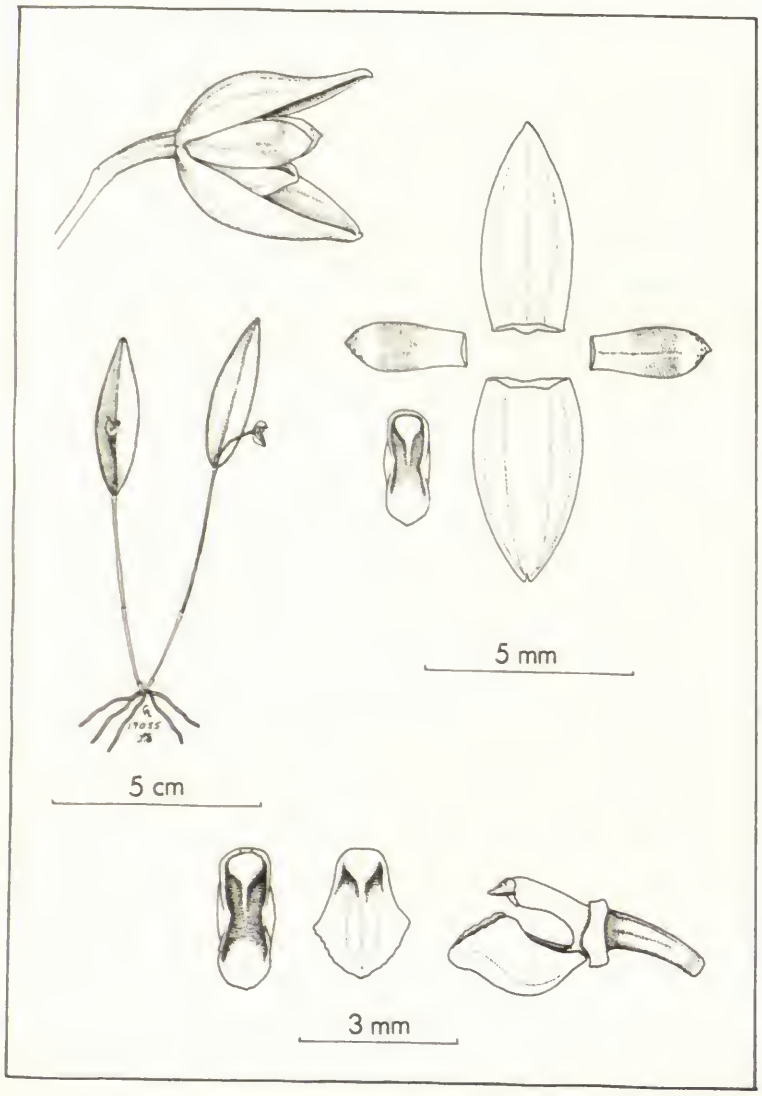


Fig. 3. Pleurothallis driessenii

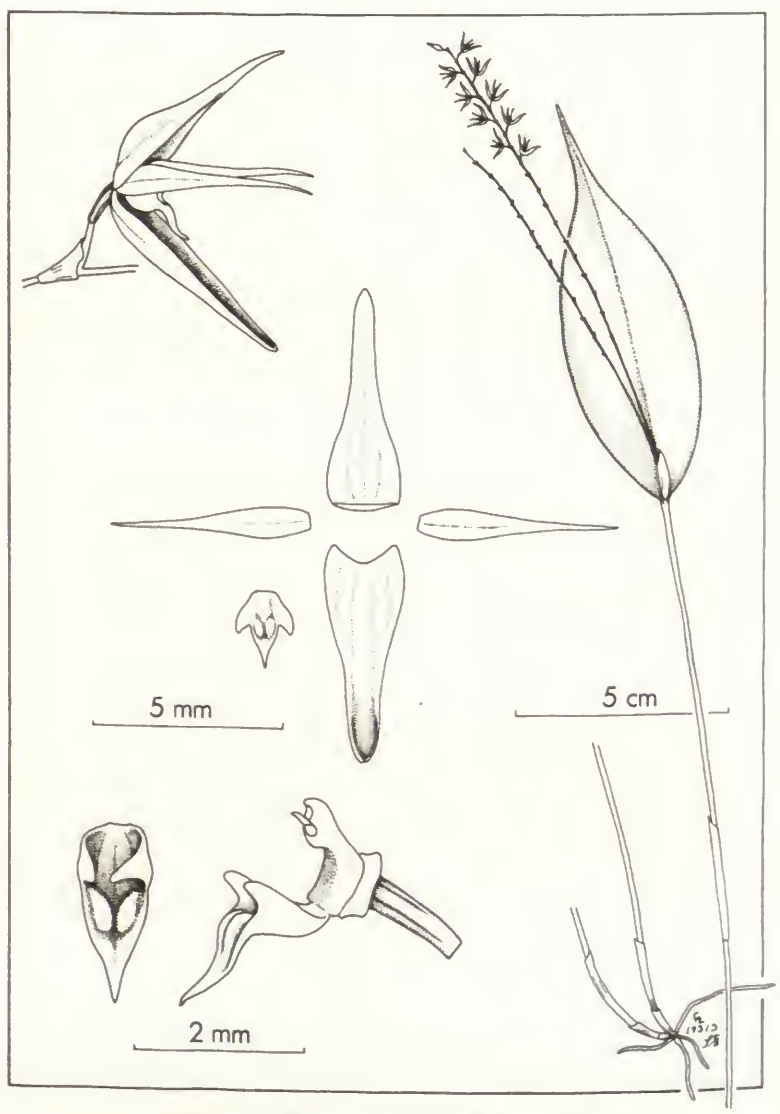


Fig. 4. Pleurothallis knappii

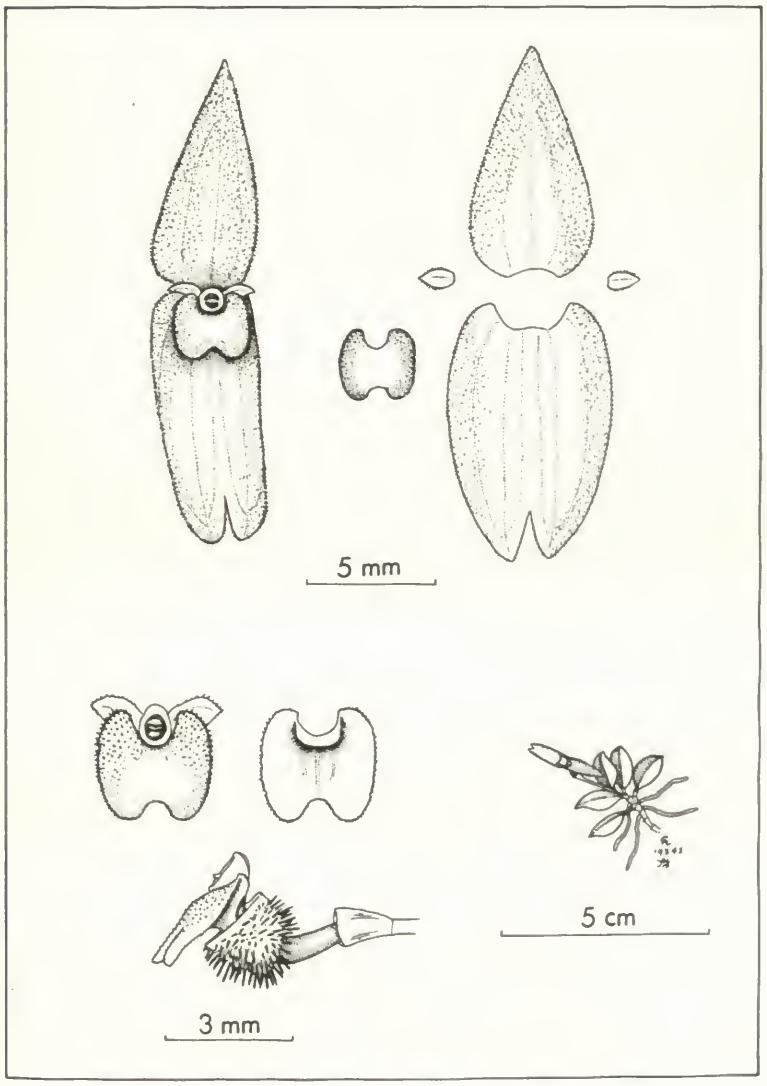


Fig. 5. Pleurothallis lappacea

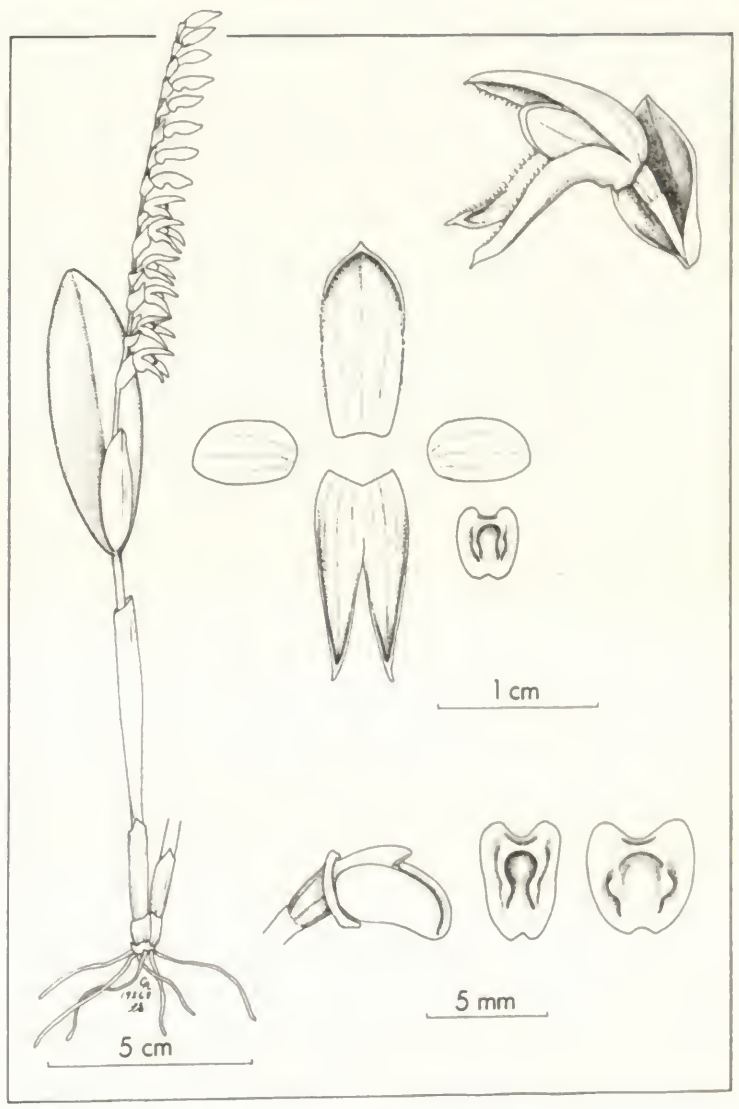


Fig. 6. Pleurothallis possoae

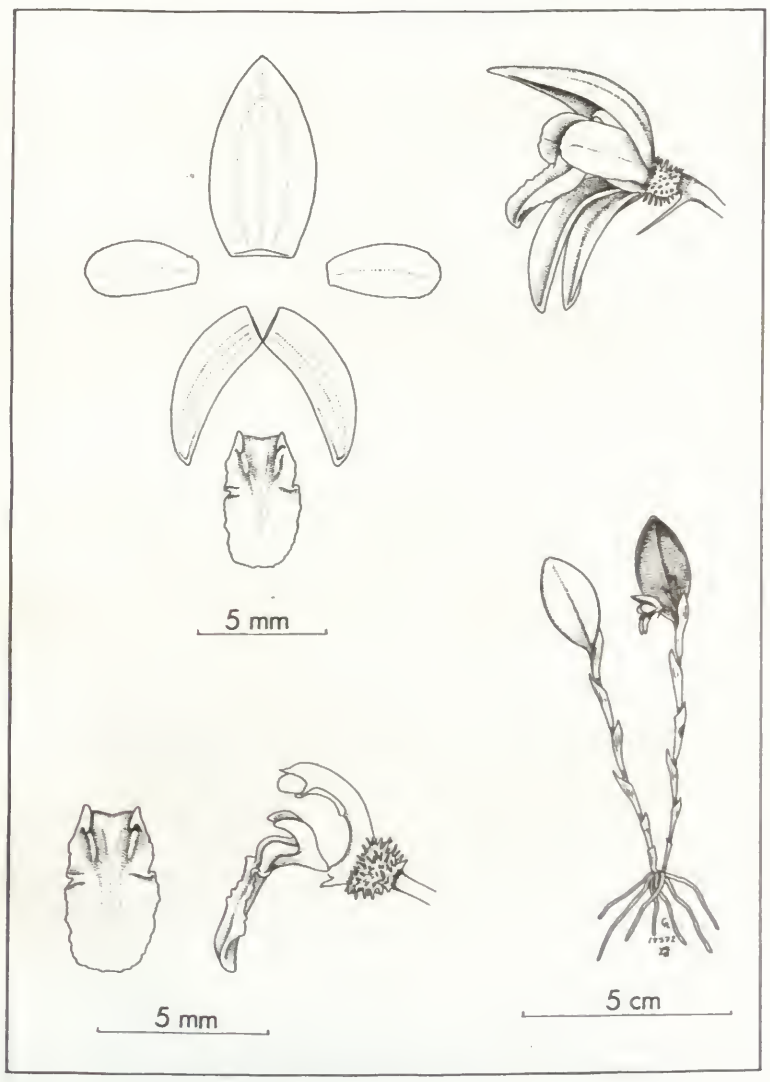


Fig. 1 Restrepiopsis niesseniae

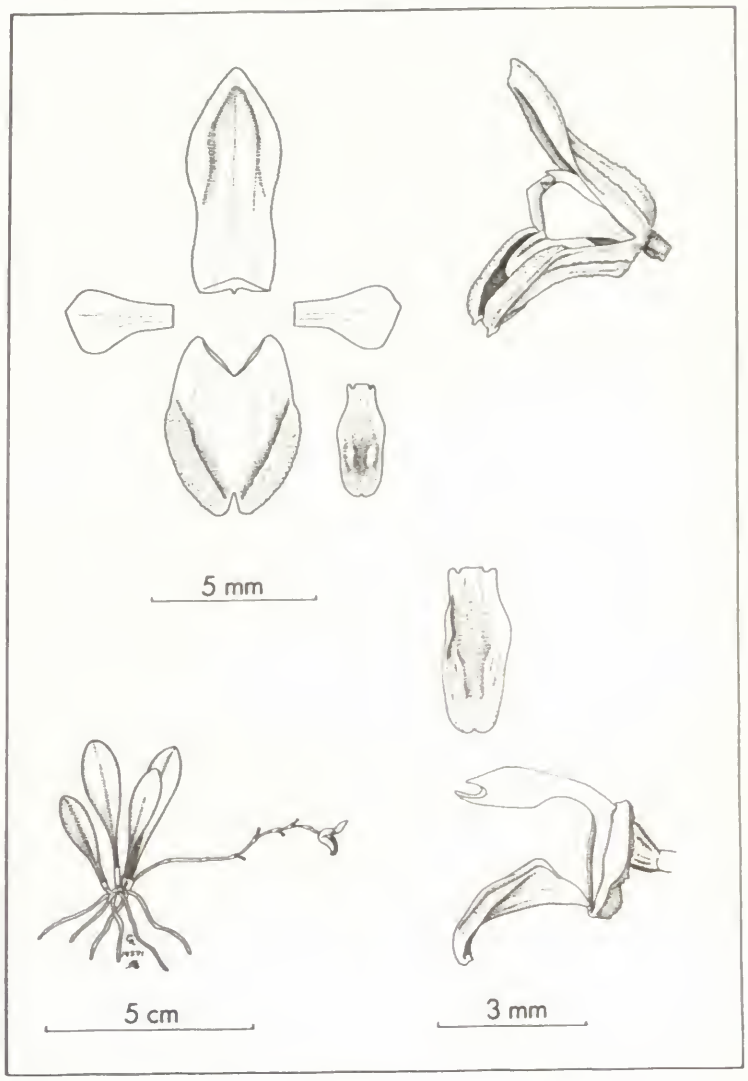


Fig. 1 Scaphosepalum medinae

Peel backing off label and place over two illustrations at bottom of Page 139.

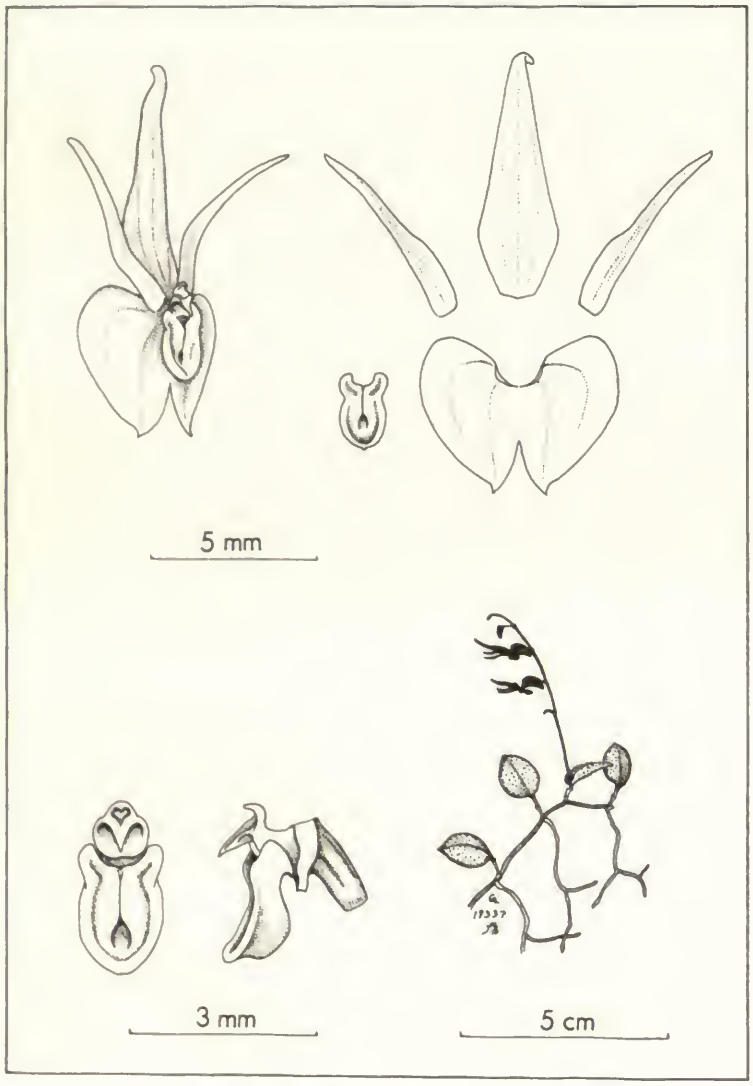


Fig. 7. Teagueia alyssana

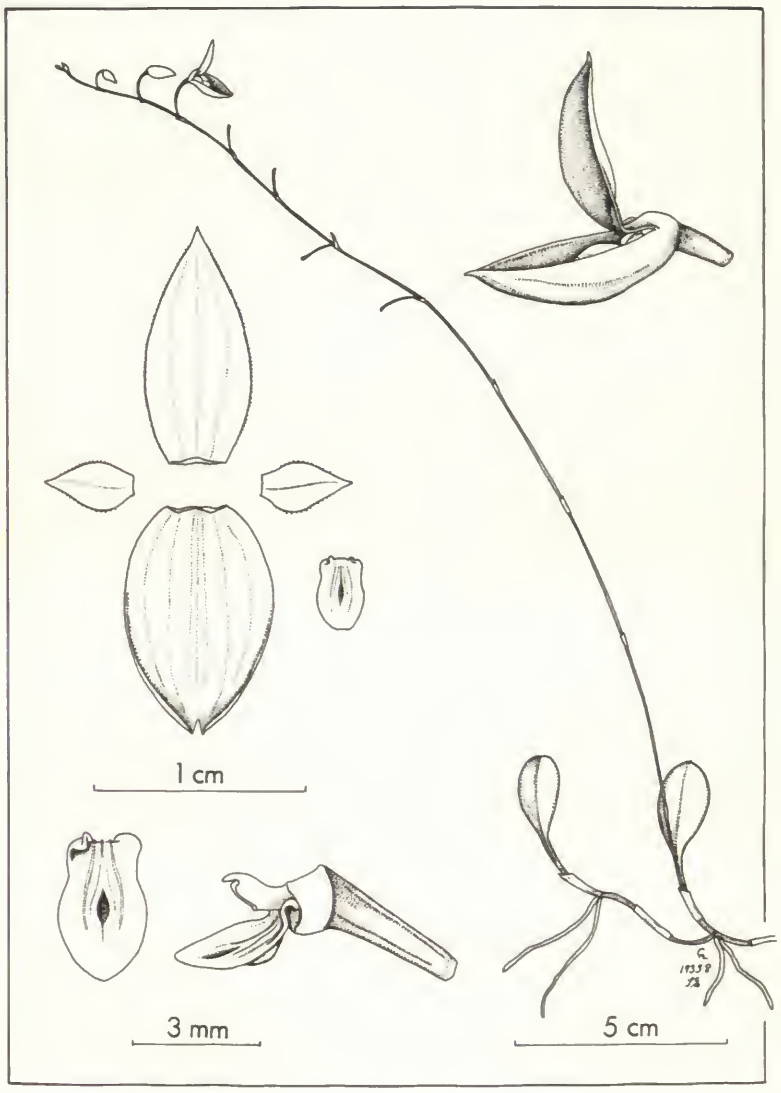


Fig. 8. Teagueia cymbisepala

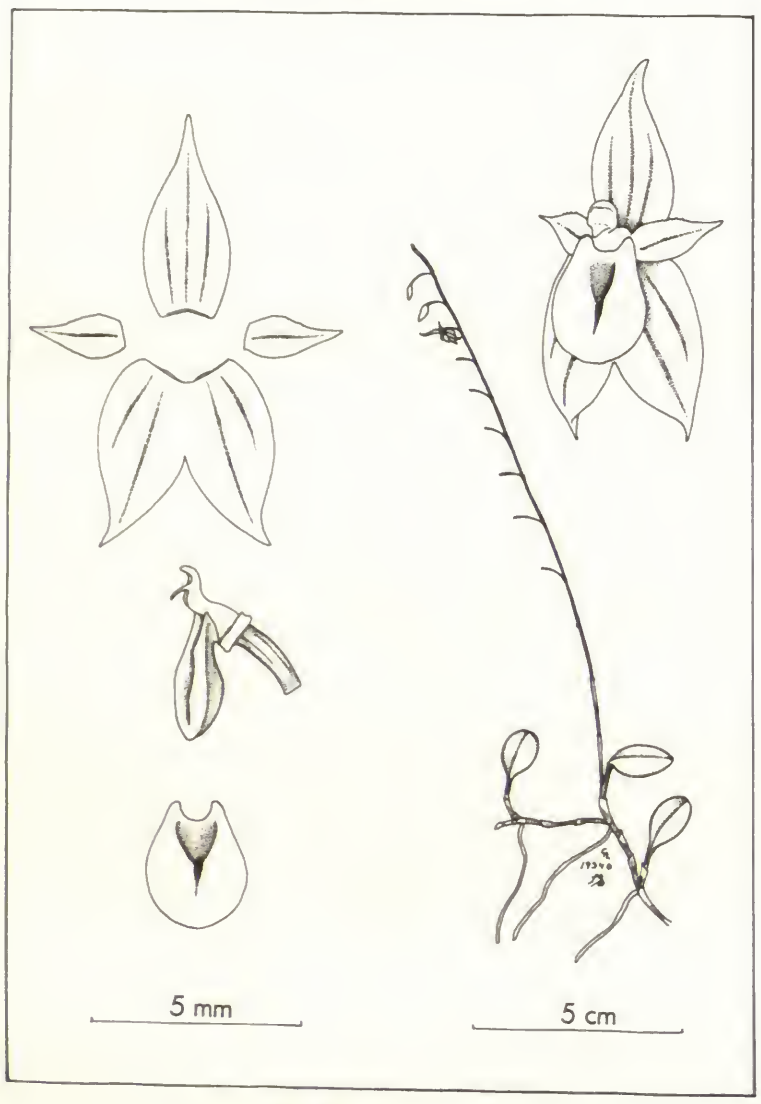


Fig. 9. Teagueia jostii

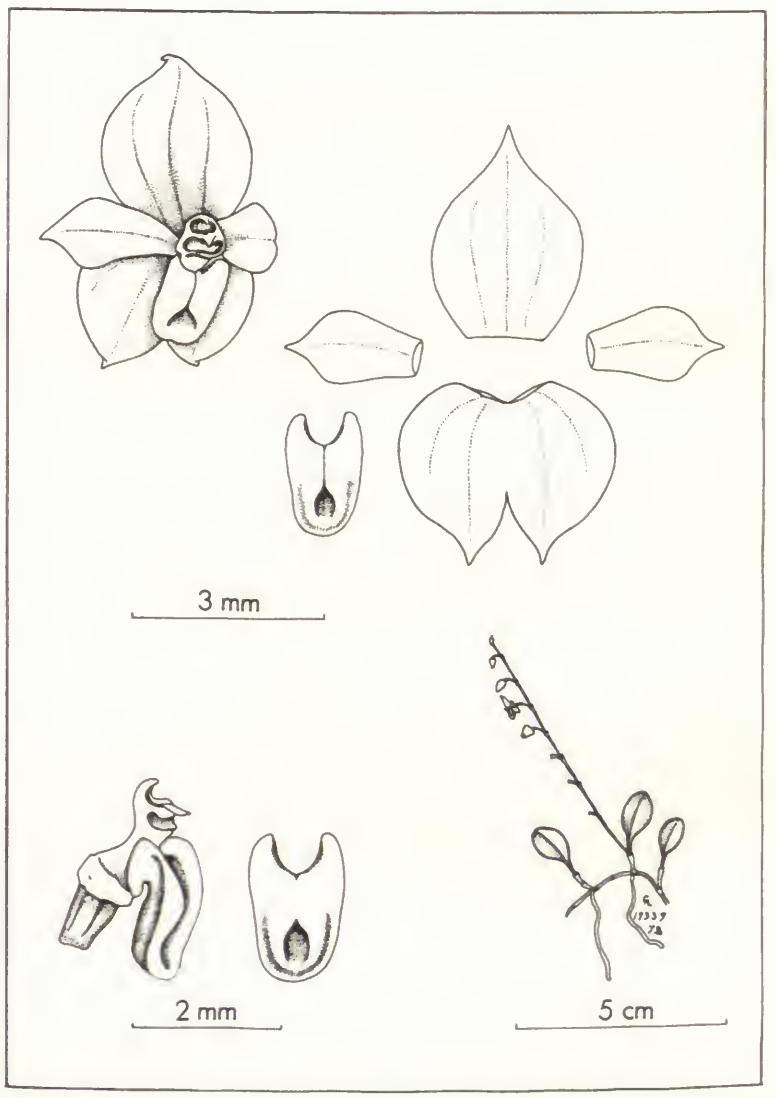


Fig. 10. Teagueia sancheziae

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